DOCUMENT RESUME

ED 323 419 CE 055 841

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TITLE	Alternative Design(s) for the Commonwealth of Pennsylvania's Delivery of a Comprehensive Articulated Program of Vocational Education. Final Report.
INSTITUTION	Ohio State Univ., Columbus. Center on Education and Training for Employment.
SPONS AGENCY	Pennsylvania State Dept. of Education, Harrisburg.
PUB DATE	May 89
CONTRACT	83-9001
NOTE	192p.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	Articulation (Education); Delivery Systems; Economic Development; Educational Finance; *Education Work Relationship; *Integrated Curriculum; Postsecondary Education; *Public Relations; *Regional Planning; *Research and Development Centers; Secondary Education; *Vocational Education
IDENTIFIERS	*Pennsylvania

ABSTRACT

A study sought to analyze the capability of the system existing in Pennsylvania to deliver a comprehensive articulated vocational education program to all, identify problems, and make recommendations to improve the delivery system. Prior studies were reviewed, the current system was described, problems were identified, promising elements were identified, the Delphi technique was used to identify and prioritize alternative strategies, findings were analyzed, and recommendations were developed. The recommendations dealt with issues of governance, administration, leadership, research, planning, evaluation, professional development, program development, and curriculum. Among the recommendations were the following: (1) Pennsylvania's vocational education should have a regional governance, administrative, and taxing structure; (2) the State Department of Education should develop a statewide public information campaign to point out the relationship between effective vocational education and the state's economic development; (3) the State Department of Education should establish a research center on vocational education and employment and three new high technology centers; and (4) an interdisciplinary curriculum should be implemented that encourages the integration of academic and vocational education. (Includes 33 references. Appendices compare Pennsylvania's economic and demographic characteristics to five other states, present Delphi instruments and responses, and summarize telephone interviews.) (CML)

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Alternative Design(s) for the Commonwealth of Pennsylvania's Delivery of a Comprehensive Articulated Program of Vocational Education

Final Report

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CENTER ON EDUCATION
AND TRAINING FOR EMPLOYMENT
THE OHIO STATE UNIVERSITY

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- quality and outcomes of education and training for employment
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- short- and long-range planning for education and training agencies
- approaches to enhancing economic development and job creation

Alternative Design(s) for the Commonwealth of Pennsylvania's Delivery of a Comprehensive Articulated Program of Vocational Education

Final Report

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May 1989

FUNDING INFORMATION

Project Title:	Alternative Design(s) for the Commonwealth of Pennsylvania's Delivery of a Comprehensive Articulated Program of Vocational Education
Contract Number:	83-9001
Source of Contract:	Pennsylvania Department of Education Harrisburg, Pennsylvania 17126-0333
Contractor:	Center on Education and Training for Employment The Ohio State University Columbus, Ohio 43210-1090
Executive Director:	Ray D. Ryan
Disclaimer:	This publication was prepared pursuant to a contract with the Pennsylvania Department of Education. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Pennsylvania Department of Education position or policy.
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FOREWORD

The desire to enhance education in Pennsylvania by improving the vocational-technical education delivery system prompted this study. Occurring, as it has, with the many changes in technology, society, and the economy, this study is particularly timely and indicative of the forethought of the State Board of Education of Pennsylvania.

Change is never easy. But, in the words of Isaac Goldberg, "to blind oneself to change is not therefore to halt it." Change will occur with or without planning and forethought. It is, therefore, the responsibility of educators to make those difficult choices that will produce positive, directed change in the preparation of individuals for the world of tomorrow.

Dr. Floyd L. McKinney, Center on Education and Training for Employment (CETE), conceptualized the study and, with the assistance of Paula K. Kurth (CETE) and Dr. Sally A. Sutter (educational consultant), developed the requisite instruments and procedures; these three individuals comprised the study team and were responsible for data collection and formulation of recommendations. Dr. McKinney served as project director from September 1988 through March 1989; Harry N. Drier then assumed project directorship through completion of the project. Dr. Gary M. Grossman was critical in developing the written context section as well as providing suggestions for report structure. Dr. Ernest L. Fields conducted and summarized the telephone interviews of officials in other states. The study was conducted in the Research and Development Division, headed by Dr. Morgan V. Lewis.

The cooperation and assistance of the educators, employers, and all those in various other positions in Pennsylvania who generously shared their time and knowledge is gratefully appreciated. Special appreciation for assistance is extended to Dr. Thomas Winters, Head, and Dr. Clarence Dittenhafer, Research Associate, in the Research, Evaluation, and Data Management Section of the Pennsylvania Bureau of Vocational And Adult Education. Dr. Dittenhafer served as project monitor. Appreciation is also extended to the Task Force composed of members of the State Board as well as the Department of Education; these individuals provided feedback to study staff during the course of this study.

Last but not least, our thanks to Monyeene Elliott, without whose efforts and skills this manuscript could not have been typed.

Ray D. Ryan
Executive Director
Center on Education and Training
for Employment

EXECUTIVE SUMMARY

Study Overview

In the 1980s, several major forces converged to cause many states to reexamine the mission of their vocational education systems and to assess how these systems should be structured, governed, and administered to develop the skills needed to ensure productivity and competence in the work force. Among these forces are such trends as--

- decreased numbers of secondary students;
- increased international competition;
- increasingly higher levels of technology that require higher levels of competence in English, mathematics, and science; and
- increased need for retraining of adults.

The State Board of Education in Pennsylvania, recognizing the implications for education of these forces, expressed concern about the current state of vocational education in the Commonwealth, citing ". . . unclear delivery patterns, overlapping functions, underserved areas of need, underused facilities, and unclear responsibilities" (Pennsylvania Department of Education, 1988, p. iii). The Education and Job Training Task Force of the Economics Development Partnership, Office of the Governor, also recommended that the current system of vocational education in the Commonwealth be assessed and recommendations made regarding the organization, curriculum, governance, and funding of vocational education, as well as the ". . . linkages between vocational programs and job placement" (Pennsylvania Department of Education, 1988, p. iii).

The study objectives, as stated in the contract, were as follows:

1. To analyze the capability of the existing systems to deliver a comprehensive, articulated program of vocational education to all clients in the Commonwealth of Pennsylvania
2. To identify the problems that now exist within the current delivery system of vocational education in the Commonwealth of Pennsylvania
3. To recommend a system or alternative system(s) to improve the delivery of comprehensive, articulated vocational education in the Commonwealth of Pennsylvania

The study objectives were achieved through a series of tasks and activities, including a review of prior studies of vocational education in Pennsylvania, the preparation of a description of the current vocational education program in Pennsylvania, the identification of problems in the Pennsylvania vocational education program, the identification of promising elements of vocational education systems in other states, the use of a Policy Delphi to assist in identifying and prioritizing alternative strategies, the analysis of study findings, and the development of recommendations. In addition, monthly in-person presentations were made to the State Board Project Task Force by the project director.

Study Recommendations

The study recommendations dealt with issues of governance and administration; leadership; research, planning, evaluation, and professional development; program development; and curriculum. Briefly, the recommendations are as follows.

Governance and Administration

Efficient and effective governance and administrative structures are essential for optimal delivery of vocational-technical education programs. In Pennsylvania, a myriad of state, regional, and local public and private institutions and agencies with varying governance and administrative structures are involved in providing vocational-technical education programs, services, and activities. This situation has resulted in blurred roles, inadequate program coordination and articulation, missed opportunities, and unserved clients.

- Recommendation 1: Regional governance. The Commonwealth should establish a regional governance, administrative, and taxing structure for vocational-technical education. The regional structure should encompass all planning and evaluation functions essential to delivering comprehensive and articulated vocational-technical education programs, services, and activities.

The need to reduce duplication of services, increase secondary-postsecondary articulation, provide knowledgeable vocational-technical education leadership, and eliminate problems attendant to the current funding flow structure prompts this recommendation.

- Recommendation 2: Commissioner of Vocational-Technical Education. The position of chief administrator for vocational-technical education in the Pennsylvania Department of Education should be designated as Commissioner of Vocational-Technical Education.

The reality that vocational-technical education is not only part of basic education but, rather, crosses into higher education as well as into the Department of Industry and Labor function prompts this recommendation.

- Recommendation 3: Regional office closings. The existing regional vocational-technical education offices should be closed and all program approval and compliance functions should be maintained in the State Department of Education offices in Harrisburg.

The regional offices are not performing all the functions they were originally designed to carry out; current functions can be performed at the central office with greater assurance of accuracy of information.

Leadership

Educational leaders have the major responsibility of developing and conveying clear and strong signals about what vocational-technical education is and what it should become. A number of innovations have been accomplished in Pennsylvania. However, in preparing for the future, a more aggressive leadership posture for vocational-technical education on the part of state and local boards of education, the State Department of Education, and local education leaders is necessary to guide Pennsylvania through the rapid technological, economic, and social changes that lie ahead, waiting to snare the unprepared. Study staff offer these recommendations regarding leadership:

- Recommendation 4: State Board advocacy for vocational-technical education. The State Board of Education should assume an active leadership posture and convey a positive commitment in regard to the importance of vocational-technical education.

The unique position of the State Board of Education to positively influence the attitudes and opinions of Pennsylvanians as well as interact with other official bodies that can influence the delivery of vocational-technical education prompts this recommendation.

- o Recommendation 5: State department leadership. **Under the direction and supervision of the Commissioner for Vocational-Technical Education, the State Department of Education should assume an assertive leadership role.**

As educators charged with the statewide administrative functions, the staff of the Commission of Vocational-Technical Education is looked to for guidance and leadership.

- o Recommendation 6: Purpose of vocational-technical education. **The State Department of Education should develop and communicate a clear statement of purpose for vocational-technical education.**

A lack on the part of Pennsylvanians of a clear understanding of the total contributions vocational-technical education can make to an individual's education as well as the well-being of the Commonwealth prompts this recommendation.

- o Recommendation 7: Business/industry/labor relationships. **The Pennsylvania Department of Education should actively promote the establishment of strong relationships between vocational-technical education and business, industry, and labor.**

Although Pennsylvania's educators and employers generally recognize the importance of strong relationships between vocational-technical education and employers, many do not understand the hows and whys of such liaisons.

- o Recommendation 8: Public information. **The State Department of Education should develop a statewide public information campaign to inform all segments of the population about the linkages between effective vocational-technical education programs and the overall success of the Commonwealth's economic development initiatives.**

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Many sectors in Pennsylvania are not aware of the positive contributions of vocational-technical education. This situation prompts this recommendation.

Research, Planning, Evaluation, and Professional Development

Research, planning, evaluation, and professional development are functions critical to the long-range survival of vocational-technical education. The functions are essential to the maintenance of program relevance, the determination of long-range policies, the evaluation of program worth, and the preparation and upgrading of professional personnel. Current Pennsylvania efforts regarding these functions are not sufficiently coordinated, focused, or funded.

- Recommendation 9: Pennsylvania Center for Research on Vocational-Technical Education and Employment. The Pennsylvania Department of Education should establish a Center for Research on Vocational-Technical Education and Employment.

The need for coordinated research, planning, evaluation, dissemination, curriculum development, and professional development in Pennsylvania prompts this recommendation.

- Recommendation 10: Teacher degree requirement. By 1996, all vocational-technical education faculty at the secondary level should have a baccalaureate degree from an teacher-education accredited institution.

The ever-increasing need for instructors to develop individuals' higher-order thinking, problem-solving, and communication skills prompts this recommendation for more broadly prepared instructors.

- Recommendation 11: Accreditation of AVTSs. All area vocational-technical schools should be accredited by an accrediting agency officially recognized by the U.S. Department of Education.

The need for recognition of vocational-technical education as a bona fide part of the educational process prompts this recommendation.

- Recommendation 12: Facility and equipment planning. The Pennsylvania Department of Education should develop a strategic plan for ensuring that vocational-technical education facilities and equipment are state-of-the-art and optimally utilized.

The need to coordinate and ensure high-quality vocational-technical education facilities prompts this recommendation.

- Recommendation 13: Compatible database. The chief executive officer for vocational-technical education should cooperate with other Pennsylvania state departments and agencies to create a compatible database for up-to-date labor market, job availability, and related information to be used by all.

The importance of coordinating labor market data prompts this recommendation.

Program Development

The Commonwealth of Pennsylvania has extensive vocational-technical education offerings at the secondary level. In some geographical areas of the Commonwealth, postsecondary and adult-level offerings are minimal. Additionally, the Commonwealth needs to ensure that it provides its citizens opportunities to prepare for the rapid advances in high technology.

- Recommendation 14: High technology centers. Three new high technology centers, in addition to the existing center currently located in Williamsport, devoted to education for occupations in high technology fields, should be established.

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The need for as well as the cost of training in high technology prompts this recommendation.

- o Recommendation 15: Technical institutes. In those parts of the state not currently served by community colleges or branch campuses, area vocational-technical schools (AVTSs) should be eligible for designation as technical institutes.

The need for equitable funding of as well as access to public-supported postsecondary vocational-technical education training and retraining in a manner that will not duplicate currently accessible programs prompts this recommendation.

Curriculum

Curriculum provides the building blocks by which learners acquire the competencies needed to achieve their career goals. The curriculum must be built on a strong research base and coordinated at all levels so that learners can progress from one level to another without wasting time and money. The curriculum must reflect the fact that workers now compete in an international economy that is, at one end, heavily service oriented while, at the other end, is very technologically advanced.

- o Recommendation 16: Elimination of general education track in secondary schools. In the secondary schools of Pennsylvania, the general education track should be phased out over a period of 4 years.

The need to prepare students for further education and work prompts this recommendation.

- o Recommendation 17: Vocational-technical education in grades 8, 9, and 10. Students should receive instruction in systems of technology, human relations and decision-making, and career selection and development in grades 8, 9, and 10, respectively.

The need for students to make informed choices regarding education and careers and to develop the ability to make those decisions as well as understand the world around them prompts this recommendation.

- Recommendation 18: Vocational-technical education in grades 11 and 12. Grades 11 and 12 should provide students the opportunity to develop specific skills in a cluster or area within a cluster. Attainment of competencies rather than the number of hours of instruction per se should be the criteria used to determine completion of a program.

The need of students to develop skills at their own pace prompts this recommendation.

- Recommendation 19: Interdisciplinary curriculum. An interdisciplinary curriculum should be implemented that encourages the integration of academic education and vocational-technical education.

The need for mutual reinforcement of knowledge and skills prompts this recommendation.

- Recommendation 20: Student educational development plan. Guidance counselors in all school districts should, with the participation of each student and parent(s) or legal guardian(s), construct and implement an educational development plan, beginning no later than grade 8, with a yearly review and update, including the opportunity for major alterations after the student has completed the career selection and development course.

The need for a carefully thought-out plan to enable every student to reach his/her goals prompts this recommendation.

Summary

The recommendations presented above are intended to address the identified needs of vocational-technical education in Pennsylvania. In the course of formulating these recommendations, many alternative approaches were considered but rejected because they did not embody and encompass the factors necessary to accomplish the necessary results. The recommendations are presented in greater detail, along with the supporting evidence, in the "Recommendations and Rationales for Improving Vocational-Technical Education in Pennsylvania," which appears later in this report. It is hoped that the reader will reserve judgment on individual recommendations until reading this chapter.

INTRODUCTION

Need for the Study

During the 1980s, several major forces converged to cause many states, including Pennsylvania, to reexamine the mission of their vocational-technical education programs and to assess how these programs should be governed, structured, and delivered to ensure productivity and competitiveness in the work force. Within the educational system generally, a number of important trends are notable. First, the number of students in secondary-level institutions has decreased (down 20.7 percent over the past 6 years), but proportionately more students come from "special needs" (e.g., disabled, disadvantaged, limited English proficiency, etc.) backgrounds. Further, increased international competition has led to calls for an American work force that is more highly skilled and efficient with the demand that education provide such workers. Finally, an "educational reform" movement has developed, expressed most substantively as increased graduation requirements in English, mathematics, and the sciences (Pennsylvania State Board of Education, 1984). The position of vocational-technical education in this "reform" has varied with the ideology of the partisan advocating it.

Whereas none of these issues have been viewed as the exclusive province or responsibility of vocational-technical education, they have had an enormous impact nonetheless. Questions regarding the role and purpose of vocational-technical curricula have surged to the forefront of the educational agenda. To what degree can vocational-technical education respond to the challenges of the work force of the future? How much can it contribute to necessary basic skills preparation of youth and adults? How can the work force demands of higher technologies be integrated into traditional curricula and at what level? Should vocational-technical education be eliminated, as some critics suggest, in favor of a far greater institutional emphasis on academic subjects? These and other questions are confronting leaders and policymakers nationwide and demand a considered response. They receive particular attention at the state level, the source of the greatest portion of funding and the point at which policy will have its greatest impact in local schools and colleges.

Although these issues themselves are important, the factor driving them to a crisis level is the rapid rate of technological change. The nature and degree of change in this respect is predicted to be greater over the next 10-20 years than they have been in all previous history (Pennsylvania Department of Education, 1984). Jobs are eliminated or modified at an unprecedented rate, a trend that will increase greatly in just few years. This has understandably increased the level of anxiety among educators, business leaders, and policymakers about many things relative to education, the competencies that workers will need in the future, and the degree to which schools and colleges can meet this need among them.

Pennsylvania is a state that has been dramatically impacted by the shifting occupational structure. It has recently endured fundamental industrial change and worker dislocation. On the other hand, Pennsylvania has also been effective in the development of new industry through visionary leadership in education, business, and government at the state and local levels. It is therefore appropriate to examine the contribution of vocational-technical education in the state, historically and at present, and the role it has played. More important, such an analysis can provide a basis with which to assist the people of Pennsylvania in creating a future, empowering them to participate for their benefit and that of the Commonwealth.

This report examines vocational-technical education in Pennsylvania from a broader perspective than one usually sees. It recognizes that a vocational-technical curriculum in a school and a policy in a state must respond to a variety of new realities. It must begin with an understanding of the roots of vocational-technical education in Pennsylvania. It must take into account social and demographic trends in the population of the Commonwealth. Further, it must respond to the emergent technologies changing the face of Pennsylvania industry as well as the capacity of the educational system to meet these challenges. The following narrative addresses these issues in detail as a basis for recommendations for the future of vocational-technical education in Pennsylvania.

Vocational-Technical Education in Pennsylvania

Pennsylvania has been a leader in the conceptualization, design, and delivery of vocational-technical education for many years. Its history of leadership, innovation, and responsiveness to the state's changing population and economy is evidence of the philosophical foundations on which the Commonwealth's vocational-technical education system was built (Jones, 1976). One important principle of the Pennsylvania system has been local control, and over the years, greater autonomy for education policy and decision making has been given and accepted by the local communities of the Commonwealth as compared to other states. Much of the ability to relate occupational skills to local or regional economics has come, therefore, as a result of strong local leadership. Through local and regional collaborative efforts, vocational-technical education programs have successfully prepared citizens for a variety of jobs in the Commonwealth's economy. This has ensured the continuing importance and value of vocational-technical training as part of the educational mosaic of the state.

In recent years, a number of agencies and organizations have examined vocational-technical education in Pennsylvania from their individual perspectives, interests, and perceived needs. Besides the Pennsylvania Department of Education's traditional leadership role, a number of groups have conducted studies or issued statements about the quality or deficiencies of the state's vocational-technical education program. These groups have expressed concerns about areas such as education and training, Pennsylvania's future economic growth, teacher preparation, industry's position regarding the improvement of vocational education, concerns of the state legislature, various approaches in postsecondary education, and other factors. They have put forward a variety of points of view regarding needed improvements and appropriate methods for changing the vocational-technical education system in Pennsylvania. Taken together, these perspectives form a foundation with which to assess the need for improving the delivery of vocational-technical education in the state. Figure 1 constructs a matrix with which to assist in this examination, the content of the reports and their contribution to the discussion about vocational-technical education in Pennsylvania.

The relationships presented in figure 1 identify specific issues made in the context of reports by groups concerned with vocational-technical education. These reports, as the figure shows, exhibit a high degree of consensus about what are perceived to be needed changes in the program of the Commonwealth. The statewide consensus on the issues can be summarized as containing elements of the following areas of improvement.

Governance and Administration

A number of studies have proposed alterations in the manner in which vocational-technical education in the state is governed. The groups obviously believed that program effectiveness and efficiency could be enhanced by modifications in administration. Among the items proposed, all of which come from several sources, is a concern for restructuring the system to--

- clarify leadership, policy direction, and program viability;
- provide better student access;
- improve secondary and postsecondary and local/regional state articulation;
- enhance visibility of vocational-technical education;

Figure 1. A matrix of issues concerning vocational/technical education program improvement.

Issues Commonly Discussed Regarding Future Improvement	Reporting Group and Agency											
	JAC	SCVE	VAP	OG	PVA	BRAPVE	PCVE	BVAE	SBE	DOL & I	RCU	PI
1. Restructure program to provide greater leadership, policy direction and articulation with business community	✓		✓	✓	✓		✓		✓		✓	✓
2. Increase and improve professional development of vocational educators		✓	✓	✓		✓	✓	✓	✓			✓
3. Examine the creation of technical institutes–using existing educational institutions	✓		✓	✓	✓	✓			✓			✓
4. Replicate business sponsored curriculum in state's schools		✓		✓		✓	✓	✓	✓	✓		
5. Increase curriculum that provides a range/cluster of occupational entry-level skills		✓	✓	✓		✓	✓	✓	✓	✓		✓
6. Increase dropout prevention programs within vocational education		✓		✓	✓	✓	✓	✓	✓			✓
7. Increase and improve comprehensive career guidance and counseling program delivery			✓	✓		✓		✓		✓		✓
8. Integrate job preparedness, counseling and guidance into total education curriculum			✓	✓		✓		✓		✓		✓
9. Utilize community leaders in guidance programs		✓	✓	✓		✓	✓	✓		✓		✓
10. Improve work readiness testing for high school students			✓	✓		✓		✓	✓	✓		✓
11. Utilize the summer period for employment and employability approaches		✓		✓				✓		✓		

Code:

JAC–Joint Action Committee
SCVE–State Council for Vocational Education
VAP–Vocational Administrators of Pennsylvania
OG–Office of the Govenor
PVA–Pennsylvania Vocational Association
BRAPVE–Blue Ribbon Advisory Panel for Vocational Education
PCVE–Perkins Committee for Vocational Education
BVAE–Bureau of Vocational & Adult Education
SBE–State Board of Education
DOL & I–Department of Labor and Industry
RCU–Research Coordinating Committee
PI–Project/Staff Inverviews in Pennsylvania

Figure 1, continued

Issues Commonly Discussed Regarding Future Improvement	JAC	SCVE	VAP	OG	PVA	BRAPVE	PCVE	BVAE	SBE	DOL & I	RCU	PI
12. Increase state's schools to work transition programs		✓	✓	✓				✓		✓		✓
13. Encourage more peer shadowing and mentoring programs (teachers/counselors/students)		✓		✓				✓	✓	✓		
14. Increase legislative and financial support		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
15. Improve student/adult access	✓	✓	✓		✓	✓		✓	✓			✓
16. All AVTS and post secondary institutions should be accredited			✓		✓	✓						
17. Examine reasons for underutilization of AVTS		✓	✓	✓				✓	✓		✓	✓
18. Increase flexibility of program (customized design and short term training)		✓	✓				✓	✓				✓
19. Increase quick response capability to changing work force needs			✓				✓			✓		✓
20. Reexamination of school codes that limit vocational education program improvement and expansion			✓		✓	✓	✓				✓	✓
21. Examine governance structures			✓				✓		✓		✓	✓
22. Increase state's adoption and implementation of competency based instruction (teachers and administrators)		✓	✓					✓	✓			✓
23. Increase state wide, regional, and local planning	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
24. Status of vocational education as major course of study			✓		✓			✓	✓			✓
25. Increase image of vocational education	✓	✓	✓		✓	✓		✓	✓			✓
26. Evaluation of the total program for student and workplace effects	✓	✓	✓		✓		✓	✓		✓	✓	✓
27. Expand and improve state staff/leadership			✓		✓				✓			

(Column group heading: Reporting Group and Agency)

Figure 1, continued

Issues Commonly Discussed Regarding Future Improvement	Reporting Group and Agency											
	JAC	SCVE	VAP	OG	PVA	BRAPVE	PCVE	BVAE	SBE	DOL & I	RCU	PI
28. Increase articulation–secondary/post secondary and employment and training		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
29. Increase state field staff/technical assistance		✓			✓			✓		✓		✓
30. Expand programs and access support for adults					✓			✓	✓	✓	✓	
31. Expand exemplary project approach to program improvement		✓				✓		✓				✓
32. Expand programs for prison inmates		✓										
33. Expand and improve use of advisory and technical committees (all levels)		✓						✓				✓
34. Examine alternative staffing arrangements in all delivery areas					✓	✓			✓			✓

- increase involvement of business and other contributors; and
- provide better staffing at all delivery points.

Clearly, structural changes in the Pennsylvania system are indicated in a number of studies.

Leadership

Another item of concern to the various groups inquiring into the improved delivery of vocational-technical education is the role of leadership. To what extent should vocational-technical education incorporate new voices into the formation of program and policy? How should they be integrated into the structure of program delivery? What is the actual interface of state authority and regional/local control? These questions, which confront every state, are of particular importance in Pennsylvania, given its tradition of progressive leadership and its changing occupational structure.

Specifically, the existing reports have identified several areas of needed change in the area of leadership in vocational-technical education. Among them are--

- the improvement of state leadership;
- the enhancement of business/industry/labor involvement; and
- the improvement of the image of vocational-technical education.

In sum, new voices need to be heard in the state and existing voices need amplification.

Research, Planning, Evaluation, and Professional Development

The purpose of major alterations in the governance and leadership structures of vocational-technical education is to facilitate substantive change. Doing so requires the determination of the content-driven questions to be addressed and an approach to their implementation. This necessitates a long-range perspective and the ability to monitor change comprehensively in the dynamic area of vocational-technical education. Recent reports have noted these planning and evaluation needs in Pennsylvania. State educational leaders have been encouraged to--

- examine the reasons for underutilization of Area Vocational Technical Schools (AVTS);
- increase statewide, regional, and local planning; and
- evaluate the effects of the vocational-technical programs.

In addition, a concern has been expressed regarding the need for Pennsylvania educators to develop necessary skills for training students for the workplace of the future. Accordingly, the studies have mentioned the need to--

- improve the quality of technical assistance to the field and
- increase the amount and quality of professional development activities for educators.

According to these reports, research, planning, and professional development are required aspects of any statewide change in vocational-technical education.

Program Development

One aspect of vocational-technical education deserving of national attention is the tendency toward uneven distribution of programs within states. The types and quality of vocational-technical offerings may vary from region to region in a state, and various communities may have different perspectives regarding what is needed in course availability. This obviously limits the ability of student access to the great variety of programs potentially available, some which may be badly needed in a given region.

This tendency has been widely noted in Pennsylvania and reports have commented on it. In particular, decision makers have been urged to--

- examine the creation of a statewide system of technical institutes where community and technical colleges do not exist,
- encourage career guidance and improved job preparedness to enhance school-to-work mobility, and
- customize vocational-technical training for jobs that do currently exist in the labor market or will characterize the Pennsylvania economy of the future.

In general, the state is being encouraged to bring some standardization and consistency to what constitutes the fabric of vocational-technical education.

Curriculum

Ultimately, the expression of change in vocational-technical education occurs in curriculum. It is the means by which competencies are acquired and training methods are communicated. With respect to curriculum, recent reports have suggested the following:

- Improvement of the secondary curriculum to facilitate school-to-work transition
- Enhancement of the curriculum to emphasize broadly-based entry level skills, such as the appropriate infusion of academic skills
- Coordination of career guidance and counseling functions in order to equip students to create career and educational plans for their schooling and their future

Curriculum is the point at which all change is implemented. It, then, is the key element in any reform.

The above categorization of issues serves several important functions for this report. First, it organizes, summarizes, and supports the work that has preceded it, amplifying its importance. Second, it provides a foundation for this inquiry, identifying the issues that merit study and the areas which must receive programmatic attention. Finally, and most important for the future of vocational-technical education in Pennsylvania, is its creation of a logical order for change across the Commonwealth. Order is important, and this can be seen by examining the alternative. It has been stated previously that the critical element in program delivery is curriculum. It is therefore possible, at least theoretically, for change in vocational-technical education to focus reform efforts exclusively at the curriculum level. However, this would mean a failure to deal with some of the difficulties of program delivery at their root, introducing a high level of uncertainty as to whether any purely curricular level changes could be encouraged or sustained across the state for any length of time. Further, the introduction of new approaches to program in the context of anachronistic administrative structures introduces inefficiencies and would further undermine any attempted reform. Indeed, to do so would continue and reinforce problems about which the need for change has been consistently identified. Change outside of a comprehensive context may only serve to continue old problems and their consequent grievances.

Therefore, prudence requires that change be viewed in comprehensive terms. Curriculum change implies modification of program delivery. These modifications should be the result of research, planning, and professional development both within and without the state. Research and planning must facilitate the expression of new voices to complement the existing educational leadership, particularly the involvement of business and industry. New leadership must operate in a supportive and participative environment, one which provides adequate visibility to the reform efforts. The starting point for eventual curricular reform, then, is modification of the governing and administrative structure. With this as a beginning, change becomes a logical process, creating contexts which can be supported and sustained over time with adequate leadership and a progressive governing structure.

Within the framework discussed, effective reform in Pennsylvania's vocational-technical system must address the specific needs of its diverse populations, communities, and economic circumstances. As such, subsequent sections of this report will discuss these factors.

Social and Demographic Trends

Like the rest of the nation, Pennsylvania's population is changing. It is aging, its relative proportion of school-age youth declining, and the youth component more heavily minority than in the past, with one-third of all births being from minority families. The Commonwealth has over one-half million persons on welfare with more new cases on the rolls of Aid to Families with Dependent Children each month. Correspondingly, family changes are more frequent occurrences, with nearly half of all Pennsylvania marriages ending in divorce in 1986, a disproportionate number occurring in minority communities. Further, state and federal prisons in the state now detain over 15,000 youth and adults.

Nothing in these data is particularly unique to the Commonwealth. These trends are national problem and impact every state. However, they are having a dramatic impact upon the Pennsylvania system of vocational-technical education. From 1982-1987, overall vocational education enrollments were down 27.5 percent. However, enrollments for persons with disabilities were up 28.4 percent, disadvantaged populations increased 37.1 percent, and enrollments for limited-English speaking persons were up 1 percent. Minority enrollments increased 17.5 percent at the secondary level, 11.85 percent at postsecondary schools, and 8.6 percent in adult education programs. As a consequence of these data, special populations are and should be of a much greater concern to Pennsylvania educators than they have been in the past. As well, the aging of the population indicates that retraining in postsecondary institutions and adult education programs needs much greater emphasis.

These issues alone should dictate major changes in the focus of Pennsylvania's system of vocational-technical education. This is not, however, the entire story. One of the unique characteristics of the Commonwealth is its diversity. It is, simultaneously, among both the most urban of states and the most rural. Although it has only two very large urban centers, the state also has a number of medium sized cities, each with its own significant industrial bases. The vast majority of minority persons reside in these cities. At the same time, Pennsylvania has areas that are very rural in nature, historically agricultural, far from a large city and significant job training opportunities. As such, reform in vocational-technical education must address both the entry-level needs of urban minority youth and the retraining requirements of the rural agricultural worker in a changing economy.

Given the combination of highly urban and very rural areas of the state, the differential response of vocational-technical education has been generally appropriate. Its local and regional focus has made it possible to adapt course offerings to the service population, making it meaningful to local economies and labor markets. Such discrete labor markets, however, are largely characteristic of the past. Local economies were fed by traditional industry, mainly coal, steel, and agriculture. Pennsylvania was hit hard by the economic crises in all of these industries in the late 1970s and early 1980s. This has impacted the entire state, exacerbating the effects of the generally recessionary direction of the American economy during those years. All over the state, industries that had directly employed or provided secondary employment for the local population for many generations ceased production, often permanently. People were out of work and, in many cases, had few transferable skills with which to combat joblessness. This placed tremendous strain on all state systems, vocational-technical education being one of them.

Since 1984, the job market in Pennsylvania has improved. Although the state unemployment rate has remained higher than the national average (about 8 percent of the work force), action through an aggressive economic development posture has led to a significant level of new-job creation. By the year 2000, it is anticipated that 550,000 new jobs will emerge. By and large, these will be the result of new technological change, small business expansion, and the growth of new industry. Jobs in these areas will require new types and levels of employment skills. By the same token, the future will also see the continued decline of jobs in traditional industries, some 230,000 job slots in the next 11 years. This constitutes a tremendous change in the occupational structure in a very short period of time.

The challenge for vocational-technical education is clear: As part of a highly dynamic world economy, change is occurring very rapidly. New jobs requiring different skills are emerging and traditional patterns of work in Pennsylvania are eroding. A regionally focused program no longer has the degree of relevance it once had. Instead, the need for a more uniform distribution of vocational-technical education services is far more important than it was in the past because both the urban and the rural student/worker must be equally well prepared for the future. Complicating this process further is the fact that demographic realities in both Pennsylvania and the rest of the nation show that the work force of the future will be older, more heavily minority, and have a greater special needs quality. Vocational-technical education in the Commonwealth will have to be on the front lines of addressing these changes. If it is to do so, major changes in its entire service delivery system are needed.

Federal and State Legislative Trends

Federal and state law have been affecting Pennsylvania's public education and vocational-technical education in particular for at least 155 years. Since 1834, Pennsylvania has had laws that provide for free public education. In 1911, the Pennsylvania School Code added provisions that allowed for the establishment of education for employment in the high school, manual-training schools, vocational schools and domestic-science schools (Jones, 1976). This resulted in the separate identification of and legislation for vocational education in 1913. These events institutionalized the mandate and principle that all youth should receive training sufficient for profitable employment. These laws were followed by the Child Labor Act (1915) that both protected the welfare and health of the young, but also established continuation schools (1916) for those 14-16 year olds who had left school to enter the work force. This was followed by compulsory school attendance laws that still exist. It is clear that Pennsylvania had a great awareness of and appreciation for vocational-technical education well in advance of the rest of the nation.

After many attempts, federal legislation was enacted in 1917, called the Smith-Hughes Act. This legislation, which is still in force, provided permanent appropriations for training in agriculture, home economics, trade and industry, and for teacher training in each field. Although it required a state match, this law was the springboard for the expansion of vocational-technical education, both in terms of content, location, and quality. This was followed by a number of federal laws, most notably the Carl D. Perkins Vocational Education Act of 1984, currently being reconsidered by the Congress for reauthorization.

The 1990s may provide much more diversified and expanded opportunities made possible by federal and state laws. At the federal level, the nation's economic condition, the increasing dropout problem, international competition, and the trend toward massive structural changes in the labor market are driving new laws and demands for attention. For example, the Congress will soon authorize over $1 billion for public vocational education. Recent employment legislation, such as JTPA, will be maintained and probably expanded. Several new laws concerning literacy, at-risk students, unwed mothers, work transition, runaway youth, and trade issues have been passed or are being considered, all of which will effect how Pennsylvania does business.

The vision of an improved and expanded vocational-technical educational system in Pennsylvania must therefore include a careful examination of how these laws and funding opportunities, blended with those of the state, formulate an articulated delivery, quality controlled, and adequately financed system for all who need and desire education for employment. This needs to be done at the highest policy levels to ensure that (1) federal funds do not completely determine the direction of state policy and (2) financial resources are used in the most economical and efficient way. Without such master planning, duplication will be created, portions of the population will be underserved, and program delivery will suffer.

Summary

Vocational-technical education in Pennsylvania faces challenges on many fronts. The state has a changing population, a rapidly shifting economic mosaic, and must respond to the realities of international competitiveness and scarce resources at the federal level. It must prepare a work force appropriate for the future in order to enhance the strength of the Commonwealth in the marketplace. To do this, substantive changes in the manner of its program delivery and a new vision of its future is recommended. The level of change needed must and should positively impact every aspect of the system of vocational-technical education, from state-level policy to the curriculum in the smallest rural high school. It must be coordinated between both the secondary and postsecondary system and include significant participation of the middle school system. Above all, it should provide students, both youth and adults, the capacity and the resources to carry out a career plan that will make them competitive in the marketplace of the 21st century.

Despite the magnitude of the transformation proposed, Pennsylvania is dealing from a position of strength. It has many positive qualities about its delivery system and they must be protected. Its regional focus, although changing with the times, should be, we believe, reinforced. Its recognition for excellence in the nation is well deserved and we propose its strengthening. Its prominence within the borders of the Commonwealth is important and what is recommended should further enhance its value.

We speak of reform in this report, not revolution. Indeed, part of the urgency of the call for progress is a subtle recognition of the viability of Pennsylvania's system of vocational-technical education. In the following sections, some of these strengths are detailed along with specific areas of concern. In the context of these issues and those developed in previous studies, recommendations will be selected among several alternatives with a discussion of why the study staff view the issue as we do. Beyond any particular recommendation, however, is our appreciation for the underlying strength of vocational-technical education in Pennsylvania and our confidence in its future.

STUDY METHODOLOGY

The Pennsylvania State Board of Education, through the Pennsylvania Department of Education, issued a competitive request for a proposal to conduct the study. The contract was awarded in mid-September 1988 with the study recommendations to be delivered in early March and the study final report in mid-May 1989. The project was monitored by staff of the Pennsylvania Department of Education and a special task force, including members of the Pennsylvania State Board of Education.

Study Objectives

The request for a proposal specified three major, interrelated objectives that the study was to accomplish. These objectives are as follows:

- To analyze the capability of the existing system(s) to deliver a comprehensive, articulated program of vocational-technical education to all clients in the Commonwealth of Pennsylvania
- To identify the problems that now exist within the current delivery system of vocational-technical education in the Commonwealth of Pennsylvania, including problems that may result from delivery, governance, curricula, facilities utilization, access, unserved needs, regulations, and financing
- To recommend a system or alternative system(s) to improve the delivery of comprehensive, articulated vocational-technical education in the Commonwealth of Pennsylvania

Study Procedures

A number of procedures were employed to assess the current status of vocational-technical education in Pennsylvania and then to develop and refine recommendations for the system's improvement. Study staff reviewed documents specific to Pennsylvania as well as documents on subjects relevant to the study, examined systems in other states through on-site visits and telephone interviews, conducted a three-round policy Delphi, and utilized a review team of out-of-state experts to critique the clarity, desirability, and format of the recommendations. In addition, study staff kept the sponsor informed regarding progress and ideas under consideration as recommendations through the project director's attendance at monthly State Board of Education Project Task Force meetings.

Review of Existing Information

During the initial part of the study, staff gathered documents containing relevant prior studies of vocational-technical education in Pennsylvania. The review of previous studies included documents such as (1) A Study of the Governance of Local Programs of Vocational Education in Pennsylvania, (2) A Study to Assess the Impact of Competency-Based Vocational Education in Pennsylvania, (3) Vocational Professional Personnel Preparation in Pennsylvania: A Future Perspective, (4) 1988 Follow-Up Survey on Chapters 5 and 6 Impact on Area Vocational-Technical Schools and Selected School Districts, (5) Student Capacities in Pennsylvania's Area Vocational-Technical Schools, 1986-87, (6) Recommendations for Two-Year Goals and Objectives for Development of the 1988-90 State Vocational Education Plan (Blue Ribbon Advisory

Panel and Perkins Committee), (7) Special Populations Participation in Federally Funded Programs or Services (1986-87), (8) Status Report of Pennsylvania's Secondary Students with Disadvantages/Handicaps in Vocational Education, and (9) Status Report on Postsecondary Special Populations in Vocational Programs.

Study staff also conducted searches with state agency personnel for other studies, documents, and records thought to be relevant in determining the status of vocational-technical education in Pennsylvania. Specifically, information was sought and reviewed regarding the (1) quality and effectiveness of Pennsylvania's vocational education programs, (2) delivery systems, (3) governance, (4) curricula, (5) facilities utilization, (6) access, (7) unserved needs, (8) articulation, (9) regulations, and (10) finance.

The content of the studies, documents, and records were analyzed to identify program mission and goals, strengths, weaknesses, issues, and problems in the delivery of vocational education in Pennsylvania. In addition to documents that provided data about vocational-technical education in Pennsylvania, study staff reviewed 186 documents identified in a computerized literature search. These documents provided information and insights relevant to vocational-technical education.

Stakeholder Interviews

In addition to the information gained from the review of studies, documents, and reports, study staff members interviewed over 170 Pennsylvanians in focus groups or individually. The interviews were with groups and individuals representing the following types of agencies or institutions:

- Area vocational-technical schools
- Branch campuses of colleges or universities
- Community colleges
- Businesses and industries
- Chambers of commerce
- Local boards of education
- Intermediate education units
- Local education agencies
- Private Industry Councils
- Professional associations
- Proprietary institutions
- Public comprehensive high schools
- State department of education
- State legislature
- Teacher centers and teacher education institutions

Twelve local sites within the Commonwealth were selected for visits by study staff. The interviews were with groups and individuals, such as--

- board members;
- administrators (secondary and postsecondary, including 4-year colleges and universities);
- vocational-technical educators;
- former and current students;
- advisory council members;
- school counselors;

- teachers (other than vocational-technical);
- employers;
- chambers of commerce staff;
- civic leaders; and
- teacher educators.

The interviews were, in most situations, one to one (study staff member and interviewee). Interviewees were told that the information collected would be treated as confidential and reported in such a way that individuals could not be identified. Most interviews lasted approximately 45 minutes and were scheduled in advance by the study staff.

Key questions. The collection of information in the interviews; review of previous studies, documents, and records; and the focus groups were guided by the following set of questions:

- What is the purpose of vocational-technical education?
- Is the current vocational-technical education system in Pennsylvania accomplishing this purpose? What are its strengths and problems?
- Describe the fundamental characteristics of the ideal way to prepare youth and adults for work in the year 2020?
- In your opinion, what changes need to be made in Pennsylvania's vocational-technical education system to achieve the ideal system needs?

Other questions dealt with educational philosophy, governance, organizational structures and style, teacher characteristics, access, effectiveness and efficiency planning, funding, facilities and equipment, curriculum, student characteristics, rules and regulations, instructional processes, linkages, articulation, professional personnel development, and community and labor market characteristics.

Review of Other States

The study staff examined the vocational-technical education systems in five other states to determine the applicability of these systems to Pennsylvania's. Two major categories were used to select the five states: (1) economic and demographic similarities and (2) delivery system dissimilarities. Table 1 in appendix A presents the economic and demographic similarities.

The states selected were Illinois, Michigan, Minnesota, New York, and Ohio. Of these five states, two were selected for site visits: Michigan and New York. Extensive telephone interviews were conducted with appropriate individuals in the remaining three states. In all five states, however, the intent was to examine the relationship between system structure and system effectiveness. This effort garnered many ideas with possible application in Pennsylvania, related to such factors as institutionalized methods for communication among service providers in a given service area, established planning processes with specified procedures for resolving differences among the parties involved, minimum overlap in the populations served by separate institutions, curriculum and program relevance, teacher certification, and finance.

To determine how well specific system elements from other states would work in Pennsylvania, the study staff analyzed the steps that would be needed to implement these elements in Pennsylvania.

Policy Delphi

One of the processes used to help develop recommendations for this study was a modified policy Delphi. This method was selected because it--

- minimizes possible misunderstandings typically found in groups of individuals advocating alternatives for program improvement or for retaining the status quo; and
- avoids domination by one or several persons, pressure to conform to peer group opinion, personality conflicts, interpersonal hostility, and the difficulty of publicly opposing persons in positions of authority.

The modified policy Delphi consisted of two consecutive questionnaires and a group meeting. Over 400 open-ended questionnaires were mailed for the first round of the Delphi to individuals believed to be informed and concerned about vocational-technical education in Pennsylvania. (A list of types of organizations with which these individuals were affiliated, as well as the Delphi instruments and related materials, are contained in appendix B). Of the 407 questionnaires that were mailed, 151 were returned. Because disagreement or conflicting assessments between individuals is common when using this procedure, study staff used summary measures to not only express the group's coverage response but also to indicate the individual's agreement or disagreement with the items. These summary measures were used in the development of the second-round questionnaire.

The second-round questionnaire was mailed to all individuals who responded to the first instrument. On the second-round questionnaire, respondents were requested to rate a statement first as to its desirability and then as to its feasibility. Room for comments was provided for each statement so that respondents could share their rationale if they so desired. Fifty-nine second-round Delphi instruments were returned.

After the policy Delphi surveys were completed, individuals were invited to participate in a group policy Delphi meeting.

Thirty key individual participated in the group meeting. These individuals were selected based on the following criteria: representation of divergent points of view; geographical representation; significant organizational, institutional, and agency representation; and politically powerful group representation. Prior to this meeting, study staff developed tentative recommendations. The group of 30 key individuals who assembled for the Delphi meeting reacted to general questions; their responses then either confirmed or denied the validity of the tentative recommendations.

The policy Delphi was a major vehicle for generating alternative recommendations. Study staff combined the information from the Delphi with all other sources of information to generate recommendations believed to have the greatest potential for a positive impact on the Commonwealth of Pennsylvania's system of vocational-technical education and, most important, on her citizens.

Critique by Review Panel

A review panel of three members met with study staff to critique the proposed recommendations. The three individuals represented state directors of vocational-technical education, community colleges, and regional (multistate) educational organizations. Panel members were requested to examine the recommendations against the following criteria:

- o Effectiveness. Has a valued outcome been achieved?
- o Efficiency. How much effort was required to achieve a valued outcome?
- o Adequacy. To what extent does the achievement of a valued outcome resolve the problem?
- o Equity. Are costs and benefits distributed equitably among different groups?
- o Responsiveness. Do policy outcomes satisfy the needs, preferences, or values of particular groups?
- o Appropriateness. Are desired outcomes (objectives) actually worthy or valuable? Are they desirable for Pennsylvania?

Data Analysis

Study staff analyzed data from several sources to formulate the final set of recommendations: interviews, previous Pennsylvania studies, reports compiled by Pennsylvania officials, policy Delphi outcomes, information gathered from other states through site visits and telephone interviews, and documents identified through a computerized literature search. The References section lists all documents used to prepare the final recommendations and report.

Decision makers and policymakers need information that makes sense. The data analysis required assembling many discrete bits of information and, through the building of a chain of evidence, staff were able to arrive at conclusions that have a trail of logical relationships from initial to final data analysis.

Data from the review of previous studies, analyses of comparable state systems, individual interviews, focus group interviews, and the policy Delphi were combined by study staff. The technique used to analyze the data was that of pattern and theme finding. When separate and varied pieces of data are involved in a study, one of the most useful methods to use is to note recurring patterns and themes.

Given the diversity of the information available for data analysis, it is essential that procedures be used for ensuring the validity of findings. Two procedures were used to ensure the validity of the findings: triangulation and outlier checks.

Triangulation is essentially a process of double-checking findings and using multiple sources of evidence. In this study, triangulation was accomplished through the use of multiple interviews with a diverse set of stakeholders; the use of document/ record reviews; the study of comparable state delivery systems; and the use of the policy Delphi.

Checking outliers involves giving careful scrutiny to those findings that seem to be outside the consensus. Although consensus findings represent the major portion of the data, findings outside this major stream were explored to ascertain if they were emerging trends or idiosyncrasies of data collection. This analysis helped prevent selection bias and provided strength to the basic findings.

Study staff reviewed the patterns and themes that emerged from the data and identified and described the major issues and problems. Issues and problems were then prioritized in accordance with study staff's interpretation of their severity and significance in regard to effective and efficient delivery of vocational education programs.

Develop Recommendations

Information used to develop the recommendations was culled from many sources. The interviews, policy Delphi surveys and group meeting, reports, studies, and state and national trends were all considered in determining the existence of a problem and proposing a solution or solutions to it.

The interviews were of primary use in determining the problems existing in the delivery of vocational-technical education in Pennsylvania. Although individuals might not agree on the solution to the problem or might view the problem from different perspectives, the fact that a situation was frequently mentioned by individuals in different roles was indicative that a problem existed that needed to be addressed. Confirmation of problems came from several sources, primarily state reports, testimony before the state legislature, controversial legislation, and previous state studies.

Solutions to the problems identified were more difficult. The policy Delphi, described in an earlier section, was a major means for generating alternative solutions. Project staff combined the information from the policy Delphi with all other sources of information to generate alternatives most likely to impact on the effectiveness of vocational-technical education in Pennsylvania. Care was taken to ensure that alternatives were developed that reflected each of the areas of major concern: delivery, governance, curricula, facilities, utilization, access, unserved, needs, articulation, regulations, and finance, among others. Emphasis was placed on developing alternatives for those problems and issues found to be pervasive and significant.

With the benefit of all information and opinions gathered, study staff prepared a final draft of recommendations. Each recommendation was assessed in terms of the following considerations:

- Extent of change in present system that would be needed
- Groups that would be affected
- Anticipated support or opposition from affected groups
- Political influence of affected group
- Anticipated costs of implementation
- Anticipated benefits if implemented

Although study staff recognized the opposition that some of the proposed recommendations would receive, the recommendations remained if study staff deemed the item to be (1) of great importance and (2) the best or only way to proceed.

State Board of Education Project Task Force

The study director met monthly with members of the State Board of Education Project Task Force to discuss project progress and to interact with Task Force members about tentative findings and emerging recommendations. The Task Force reviewed the final recommendations prior to their presentation to the State Board of Education in March 1989.

Interim and Final Reports

At the request of the State Board of Education, study staff agreed to prepare and submit an interim report containing the final set of recommendations to the State Board at the Board's meeting in March 1989. The interim report contained the recommendations only and not the supporting data that led to the recommendations. The final report was prepared for delivery in mid-May 1989.

A VISION FOR THE FUTURE

Vocational-technical education has the potential to be a major contributor in building and maintaining a vibrant, dynamic future for each individual in the Commonwealth of Pennsylvania and for the future of the Commonwealth as a whole. As vocational-technical educators identify and explicate the unique role of vocational-technical education in helping individuals achieve a satisfying and productive life, it will be recognized as a viable part of the educational program in the Commonwealth.

The economic well-being of the Commonwealth is directly related to the capacity of its people to perform work efficiently and effectively. Individuals must be well prepared upon initial job entry, they must have a lifelong desire and capacity to update their competencies, and an opportunity to acquire those competencies. The primary key to Pennsylvania's economic survival and ultimate success depends heavily on the extent to which it prepares its work force for the present and the future. Pennsylvania needs excellence in its philosophers and plumbers, doctors and x-ray technicians, dentists and dental hygienists, and architects and construction workers.

The future of vocational-technical education in Pennsylvania is intertwined with broader social, economic, political, and education policies and practices. Alarms are frequently sounded in all of these areas about pending disasters. Almost without exception, pending disasters are seen to have a special relationship to some perceived failure of the education system. However, although education is often erroneously blamed for societal, economic, and political failures, there can be no doubt that education can contribute to solutions and to the Commonwealth's progress. For education to function optimally, vocational-technical education must play an increasingly important role in Pennsylvania's economic and social affairs.

Vocational-technical education in Pennsylvania must undergo fundamental reforms if it is to provide the best mix of programs, services, and activities. These reforms, to be successful, cannot be superficial; it is time for major restructuring if vocational-technical education programs are to achieve maximum potential. The reforms proposed in this study will not be successful if they receive only symbolic support. Leadership must come forth from the education, business, industrial, labor, and political communities to ensure that substantive and enthusiastic support is maintained during the process of reform.

As vocational-technical education increases its quest for excellence, it must maintain a clearly focused vision of what vocational-technical education can become. Key building blocks of that vision include--

- less emphasis on the technocratic model characterized by centralization of control, bureaucracy, and standardization;
- more emphasis on the subjective aspect of vocational-technical education reflecting the interests, motivations, and needs of all individual learners;
- a stronger realization that individual intellectual development differs among learners;
- a commitment to the value of both liberal education and vocational-technical education and the realization that its articulated delivery is not simple;

- recognition that vocational-technical education is basically a local enterprise reflecting diverse needs and interests operating in an increasingly competitive world characterized by diminishing economic and technological boundaries;

- an emphasis on creative and innovative approaches for empowering individuals to become satisfied and productive members of society;

- an appreciation of the need to help prepare individuals to compete in the world marketplace of the future by being able to resolve work-related situations and to think creatively;

- a dedication to preparing individuals to compete in tomorrow's sophisticated technological world; and

- a refocusing of vocational-technical education to include--

  - the integration of content and processes of vocational-technical education in the overall education program of all students,

  - the development of core skills that can be delivered through a coordinated vocational-technical education curriculum,

  - expanded use of hands-on learning experiences for all subject areas,

  - a new awareness of vocational-technical education's role in developing broad, transferable skills as well as job-specific skills,

  - the assumption of responsibility by students for their own learning, and

  - the encouragement of students in developing creative and divergent thinking and processes.

The challenge is great for vocational-technical educators. It is not easy to be subjected to the microscope and spotlight of peer and public scrutiny. Vocational-technical educators and those who perceive themselves to be its critics must recognize what is at stake and form the bonds essential to ensuring change in direction and to providing support.

The underlying purpose of this study is to raise questions about what occurs in vocational-technical education in Pennsylvania and to provide recommendations for improving the program. These proposals constitute a rather extensive restructuring of some of the systems essential for a viable vocational-technical education system. Those who are involved with education, affected by it, and care about it, need to consider carefully the potential of these proposed changes.

RECOMMENDATIONS AND RATIONALES FOR IMPROVING VOCATIONAL-TECHNICAL EDUCATION IN PENNSYLVANIA

Governance and Administration

Efficient and effective governance and administrative structures are essential for optimal delivery of vocational-technical education programs. In Pennsylvania, a myriad of state, regional, and local public and private institutions and agencies with varying governance and administrative structures are involved in providing vocational-technical education programs, services, and activities. This situation has resulted in blurred roles, inadequate program coordination and articulation, missed opportunities, and unserved clients.

Recommendation 1:
Regional Governance

The Commonwealth should establish a regional governance, administrative, and taxing structure for vocational-technical education. The regional structure should encompass all planning and evaluation functions essential to delivering comprehensive and articulated vocational-technical education programs, services, and activities. The following items are suggestions for implementing this recommendation.

- The geographical area to be covered by a region should be analogous to the intermediate units. The vocational-technical regions should be numbered to be analogous to the numbers for the intermediate units.
- Each region should be governed by a board of five members elected at large by the eligible voters in the geographical area. The board should be known as Region (#) Vocational-Technical Education Board.

- The regional vocational-technical education board should have taxing authority.

- The regional vocational-technical education board should select a regional superintendent for vocational-technical education who serves as the board's chief executive officer and provides leadership for vocational-technical education in the region.

- Each region should have an assistant superintendent for vocational-technical education with major responsibility for regional planning and evaluation of vocational-technical education.

- The regional superintendent and staff should be housed in a centrally located area vocational-technical school.

- Each region should have an advisory council composed of representatives of business, industry, and labor. The regional advisory council should work closely with the Regional Vocational-Technical Education Board and the region's vocational-technical education staff. The Regional Advisory Council should be used in program planning and evaluation efforts.

- Each region should have regional program councils rather than a separate council for each school program, that is, there would be one council for drafting rather than one at each school offering drafting. These councils should relate to the regional staff and to all teachers in that program area. Although these councils should relate to program planning and evaluation activities specific to their program area, their major emphasis should concern the relevancy of the curriculum to current and future labor market needs.

- In those regions where technical institutes are established, they should be under the governance and administration of the regional vocational-technical education board.

- The regional vocational-technical education board should develop, with the collaboration of area vocational-technical education school directors, vocational-technical education faculty, business/industry personnel, labor leaders, community college personnel, comprehensive school personnel, and others as deemed appropriate, annual and 5-year plans for delivering vocational-technical education programs. This document shall be referred to as the Regional Vocational-Technical Education Plan. These plans should, at a minimum, be based on an assessment of the needs of individuals of all ages, employers, and the larger society. The regional plan should include--

- an analysis of the regional needs;
- the specification of programs, services, and activities essential to meet the identified needs;
- the identification of the schools/colleges or agencies that will deliver the specific programs, services, and activities;
- articulation and coordination agreements essential for vocational-technical education program delivery;
- strategies for ensuring the integration of academic and vocational-technical education;
- strategies for ensuring the linkage and relevance of vocational-technical education programs with business and industry;
- strategies and procedures to be used in evaluating the effectiveness of the program; and
- strategies for ensuring appropriate involvement of business and industry in planning and conducting vocational-technical education programs, including the determination of program relevance and the potential for sharing private-sector equipment, facilities, and personnel.

o As an inducement toward compliance, the Pennsylvania Department of Education should withhold state and federal funds for all education programs in a region until all involved educational institutions have engaged in the planning process and have officially accepted the Regional Vocational-Technical Education Plan.

Although this plan calls for implementing a new administrative structure, study staff, after considering many alternatives, believe this structure is the best way to proceed because it provides for decision-making at the level directly affected, it ensures that individuals with indepth knowledge about vocational-technical education have input of equal weight in the decision-making process, and it should eliminate budgetary considerations as a major factor in determining student enrollment in educational programs.

Rationale. In Pennsylvania, local control of the K-12 and 2-year postsecondary systems is highly valued. Silberman is supportive of Peters and Waterman's concept that favors placing ". . . decision-making authority at the local level, while retaining central monitoring of a few key values . . ." (Silberman, 1986, p. 13). However, interviews with educators in Pennsylvania indicate that local control as it currently exists does not operate in an effective manner in all cases.

The problems concerning regional governance raised in interviews are many. Competition between service providers for students, duplication of services, and lack of articulation between secondary and postsecondary institutions were frequently mentioned as serious problems. The decrease in the numbers of students of high-school age has caused a decrease in revenues to support basic and vocational education. However, because sending schools are in control of the number of students that will ultimately attend their AVTS, enrollments at AVTSs have dropped by a greater percentage than have those at the sending schools. Concern has been expressed that all students who wish to attend an AVTS be permitted to do so. Examples of remarks made in interviews follow:

> "In many counties, the joint boards are not supportive of vocational education." (AVTS principal)
>
> "Local school systems' decisions regarding numbers of students who attend AVTSs are based upon needs of their school system. The needs of the system subvert the needs of the students." (community college staff member)

> "Education in Pennsylvania is a fragmented and turf-ridden system. Governing boards are political animals." (government official)
>
> "The current educational situation has made vocational education separate but unequal. This situation is a conscious decision on the part of sending schools." (community college staff member).
>
> "Superintendents want to maintain their enrollment and keep their programs in place and their faculty employed." (teacher educator).
>
> "The sending school administration wishes to keep their staff fully employed as enrollment decreases. Therefore, school districts play a 'numbers game' based upon the needs of the sending schools and not upon the needs of the students." (regional office staff).
>
> "The factors that drive vocational education have nothing to do with the needs of students. These pressures are political, economic, and financial, and involve a lack of appreciation for vocational education on the part of school superintendents." (teacher educator).

Not only are the sending schools and the AVTSs not working together in a supportive manner, but secondary education institutions are not working cooperatively with postsecondary institutions. The lack of articulation has been decried by individuals responsible for education at the secondary and postsecondary and local and state levels. Individuals interviewed from intermediate units, the State Department of Education, other state agencies, comprehensive high schools, AVTSs, and community colleges were unanimous in support of articulation between secondary and postsecondary education institutions.

Public meetings conducted by the Pennsylvania Council on Vocational Education on February 11, 1986, elicited a concern that issues of regionalization have not been resolved, and recommended that they should be (Pennsylvania Council on Vocational Education, 1987). The Perkins Committee is supportive of a regional planning process (Perkins Committee for Vocational Education, 1987). A review of the governance of local programs recognized the problem of student selection as being an issue at the local level (Local Government Research Corporation, 1981).

Results from round 2 of the Delphi instrument related to aspects of the regional governance plan received mixed responses. A copy of this instrument and ratings appears in appendix C. Forty-six percent of the respondents rated the requirement of articulation agreements as "highly desirable;" another 42 percent rated it as "desirable." Feasibility rating were also positive (76 percent). (See question 2, appendix C.) Question 16, regarding the creation of an elected school board for AVTSs, however, did not receive as favorable a response. Question 19, regarding the funding pattern for AVTSs, received a 21 percent very desirable and a 27 percent desirable rating. Although the response to question 20, double funding for secondary students attending an AVTS, was favorable (33 percent "very desirable" and 22 percent "desirable" ratings), it was not included in recommendation 1, being deemed by study staff as unrealistic.

Illinois has created an Education for Employment Plan that calls for the state to organize on a regional basis in order to receive vocational education funds. Illinois also requires secondary to postsecondary articulation in order to receive funds (see appendix D).

The recommendation on regional governance, then, was formulated on the basis of these expressed concerns. The intent of the recommendation is to promote coordination and articulation, ensure the access of students to AVTSs, and reduce the duplication of services currently prevalent in many of the localities within Pennsylvania.

Recommendation 2:
Commissioner of Vocational-Technical Education

The position of chief administrator for vocational-technical education in the Pennsylvania Department of Education should be designated as Commissioner of Vocational-Technical Education.

Rationale. The issue of creating the position of Commissioner of Vocational-Technical Education is recognized by the study staff as a sensitive and controversial topic. This recommendation, however, is made in response to many concerns that vocational-technical education is not currently receiving the support necessary to enable this educational process to contribute its strengths fully to the educational system in Pennsylvania, as well as in response to the fact that vocational-technical education is a postsecondary as well as a secondary education program and should have strong ties to employment and training programs, as well. Currently, the vocational education bureau chief reports to the Commissioner of Basic Education, but the bureau chief deals with issues that cut across basic and higher education (interview with a State Department of Education administrator) as well as to labor and employment issues. The Blue Ribbon Advisory Panel for

Vocational Education, in its November 13, 1987 report, recognized the need for a commissioner of vocational education.

Having a commissioner of vocational-technical education could better facilitate development of relationships with the labor and commerce department (interview with an AVTS director). As one intermediate unit director stated, "There is very little planned coordination and cooperation within the State Department of Education bureaus or between bureaus in the State Department of Education and other state agencies. Having a Commissioner for Vocational-Technical Education would provide a direct line of communication to the Secretary of Education" (interview with an AVTS director). A Commissioner for Vocational-Technical Education would end the confusion about responsibility for vocational-technical education at the postsecondary and secondary levels and would provide an important status of equality and new avenues for coordination and cooperation between basic education and vocational-technical education and secondary and postsecondary vocational-technical education programs.

Question 6 on the round 2 Delphi instrument (appendix C) asked participants to rate the idea of creating a position of commissioner for vocational-technical education. Forty-one percent rated such action as either "very desirable" or "desirable," and 35 percent indicated "no judgment" or did not respond.

Recommendation 3: Regional Office Closings

The current regional vocational-technical education offices should be closed and all program approval and compliance functions should be maintained in the State Department of Education offices in Harrisburg. Current regional staff members should be considered for job openings within the State Department of Education. Assistance in job searches, when needed by regional staff members, should be provided by the State Department of Education.

Rationale. The recommendation to close the regional offices is based on several factors. First, when the regional offices were organized in 1971, the staff in each office numbered 16 rather than the current 8 and included subject-matter specialists who could respond to specific questions from or provide technical assistance to staff in the school districts in the three regions. The cutbacks in staff have necessitated cutbacks in the kinds of services regional office staff can provide. Now, the regional office staffs ". . . are more involved in helping local staff work through regulations than providing leadership" (intermediate office staff member), ". . . are involved primarily in making application for federal funds" (school superintendent), ". . . receive the self-evaluation forms" (regional office staff member), ". . . are performing clerical tasks too frequently" (regional office staff member), ". . . guide the paperwork necessary when changes are made in vocational-technical programs . . ." at the secondary level (interview with an AVTS director), and ". . . are very limited in the ability to supply technical assistance" (interview with regional office staff member). Most of these activities are ones that can be performed at the main Bureau office in Harrisburg, and at less expense than the overhead involved with three separate facilities. The crucial factor in recommending the closing of the regional offices, however, was that the interpretation of rules and regulations is not consistent across school districts and regions (interview with regional office staff member).

Round 2 Delphi respondents rated closing the intermediate offices and placing staff in intermediate units as either undesirable or very undesirable (58 percent), with 34 percent indicating they could not judge the desirability of such an action or did not respond. Comments indicate that the disagreement was frequently with placing personnel in intermediate units, which are perceived as being too politicized.

Leadership

Top leadership has the major responsibility of developing and conveying clear and aggressive signals about what vocational-technical education is and what it should become. A number of innovations have been accomplished in Pennsylvania. However, in preparing for the future, a more aggressive leadership posture for vocational-technical education on the part of state and local boards of education, the State Department of Education, and local education leaders is necessary to guide Pennsylvania through the rapid technological, economic, and social changes that lie ahead, waiting to snare the unprepared.

Recommendation 4: State Board Advocacy for Vocational-Technical Education

The State Board of Education should assume an active leadership posture and convey a positive commitment in regard to the

importance of vocational-technical education. To this end, study staff suggest that the board should--

- review state governance and administrative structures to determine their effectiveness and efficiency in promoting vocational-technical education,
- clarify and communicate the role of vocational-technical education in all Commonwealth educational institutions,
- coordinate and cooperate with other state-level boards and institutions in promoting the interrelationship essential to quality vocational-technical education issues,
- hold specific sessions or retreats on the long-range plans for vocational-technical education, and
- establish, within the State Board, a Council on Vocational-Technical Education.

If the State Board of Education, through its own action or through the actions of others, declines to accept the challenge of advocacy for and commitment to vocational-technical education in Pennsylvania, then it must share the burden of educational and economic disadvantagement that will fall on the shoulders of all Pennsylvanians.

Rationale. A central role of a state board for education is advocacy. A state board is the governing body that sets the standard to which other educational governing bodies react. If the state board for education does not display a positive, supportive, and aggressive attitude--through word and deed--toward vocational-technical education, that fact is perceived throughout the educational system and the legislative system as well. Of course, the converse is true as well. This recommendation, then, is in recognition of the role that a state board of education must play in the educational policymaking arena to ensure that educational programs do all that is possible to promote the attainment of state goals.

Recommendation 5:
State Department Leadership

Under the direction and supervision of the Commissioner for Vocational-Technical Education, the State Department of Education should assume an assertive leadership role. Study staff suggest that, to provide that leadership, the following steps are essential:

- Employ and retain highly qualified staff.
- Provide clear signals concerning future directions for vocational-technical education.
- Promote creative/innovative programs.
- Assume responsibility for program approval, compliance, and program evaluation.
- Develop and monitor all aspects of funding procedures.

The department staff will have to be recognized as intellectual and philosophical leaders for vocational-technical education if the leadership role is to be taken seriously. This means that the department staff, while still monitoring for compliance, must emphasize leadership functions.

Rationale. The effect of leadership provided by the state department of education in a state or commonwealth should not be underestimated. Curtis (n.d.) notes the importance and need for positive leadership in Pennsylvania at the state level. As is true of a state board of education, the stance taken by a state department of education administration will affect education throughout the commonwealth. Leadership within the SDE can help to mediate issues of "turf;" improve the image of vocational-technical education by implementing progressive policies, rules, and regulations; and serve as an example of professionalism for other vocational-technical educators.

Unfortunately, interviews with education personnel in Pennsylvania indicate widespread disappointment, discontent, and dissatisfaction with the stance taken by the State Department of Education administration. The lack of initial coordination of Chapters 5 and 6 was mentioned by the majority of individuals interviewed by study staff. A staff member of a community college was concerned about a perceived double standard in regulating vocational-technical education programs between AVTSs and comprehensive high schools. A high school principal was concerned about the lack of leadership for promoting vocational-technical education. A teacher educator believes that Bureau of Vocational and Adult Education staff has insufficient first-hand knowledge and experience about vocational-technical education. One AVTS director said, very bluntly, "Bureaucrats who have no experience in the field and no experts on their staff can't provide much assistance or leadership." These are just examples of the comments of a very broad dissatisfaction expressed by State Department of Education staff, AVTS directors, high school principals, teacher educators, community college staff, and intermediate unit directors.

The quality of leadership affects all aspects and levels of vocational-technical education in Pennsylvania and is noted by this and other recommendations of the study. This is a serious problem and must be addressed with equally serious care.

Recommendation 6:
Purpose of Vocational-Technical Education

The State Department of Education should develop and communicate a clear statement of purpose for vocational-technical education. This purpose should be generated with input from local educators and the business/industry/labor communities. The State Department of Education should then communicate the purpose of vocational-technical education to all the appropriate publics within the Commonwealth, as well as within the Department.

Rationale. The educational system reflects a nation's perceived needs. In the colonial period of U.S. history, education was for the elite of society. As the need for education for various professions and jobs became clearer, more and more individuals from all economic classes participated in the educational process. Today, the economic, technological, and social climates are vastly different from that of even 20 years ago, and education must be responsive to these changes. Vocational-technical education, as part of the education enterprise, must ". . . adapt with the rest of the school and the economy to meet changing needs" (Curtis, n.d., p. 8). Unfortunately, in attempting to meet the changing needs of everyone, vocational educators have permitted the mission of vocational education to become fragmented, lacking a comprehensive focus. Done with the best of intentions, this action has placed vocational education in the position of scapegoat for many of the failures of basic education, society, and the economy. Vocational education must determine its primary mission (Curtis, n.d.).

Defining the purposes of vocational education at the secondary level is important for two reasons. First, the lack of a clearly defined purpose is a major obstacle in planning and evaluation ("Making Vocational Education Better for Students," 1986). Second, a study of employers' opinions regarding vocational-technical education in South Carolina concludes that if the purposes of vocational-technical education are not clear, this fact ". . . can cloud student decisions to enroll" (What Employers Say About Vocational Education in South Carolina, 1986, p. 18). The reasons are obvious: if one does not have a guiding purpose, how will one know what to plan to achieve meaningful outcomes or determine if success has been achieved?

Thompson (1986) notes that "vocational educators should be active participants in defining the goals and priorities of education." This is an important issue: control of one's destiny is more likely if one is proactive rather than reactive. "If others design the parameters, there may be complex difficulty when implementing the goals" (p. 6).

The purpose of vocational-technical education was asked of the individuals interviewed in Pennsylvania in the course of this study. The most common answer was that "secondary vocational education can prepare a student for a specific job, reinforce basic skills, and prevent dropouts." This particular response was given by a State Department of Education administrator and was echoed by the majority of interviewees. A teacher education administrator, however, offered a different perspective on the subject, saying, "If the only purpose of vocational education is to prepare people for work, it's preparing them for obsolescence." It is imperative, therefore, that the direction in which vocational-technical education is moving be elucidated and communicated to all publics in the Commonwealth of Pennsylvania. This position is supported by the report of the Blue Ribbon Advisory Panel for Vocational Education (1987), and was echoed in a symposium held in 1986 ("Making Vocational Education Better for Students," 1986). A sense of urgency on this topic is being expressed nationwide, as well as in the Commonwealth.

Round 2 Delphi respondents were overwhelmingly in favor of the state education agency coordinating the development of long-range vision for vocational-technical education and communicating that vision. Responses were 70 and 27 percent, respectively, "very desirable" and "desirable."

Recommendation 7:
Business/Industry/Labor Relationships

The Pennsylvania Department of Education should actively promote the establishment of strong relationships between vocational-technical education and business, industry, and labor. Study staff suggest that these relationships include--

- the potential for sharing private-sector facilities, equipment, and personnel;

- the involvement of business, industry, and labor personnel in the identification of labor-market demand, the identification of competencies needed by workers, and the validation of curricula for its relevance to labor market needs; and
- the use of business and industry sites for helping vocational-technical education personnel maintain up-to-date job knowledge and skills.

The Department of Education should consider naming a blue-ribbon commission of business, industry, and labor leaders to assist in promoting strong relationships between business, industry, labor, and education.

Rationale. Vocational-technical education in the Commonwealth can be greatly enhanced through partnerships with business/industry and labor. Charp (1988) states that "establishing a partnership between business and education" is one of the vital components of education and schools for the 21st century (p. 32). As noted in a 1984 study, "vocational teachers must continually upgrade their own basic 'technical' skills. Closer cooperation with industry programs will greatly aid teachers in their efforts to keep their courses up to date with the industry" (Wade, 1984, p. 8). The Pennsylvania Council on Vocational Education (1987) report also recognizes the importance of partnerships with business, industry, and labor in updating the skills of vocational-technical faculty. The Study Team on Teacher Preparation (1988) report states in recommendation 10 that "encouragement should be given to business and industry to develop partnerships with local school districts to strengthen support for teaching . . ." (p. 13); the report continues by offering examples of the types of activities such partnerships could provide.

However, the benefits of a working relationship between business, industry, and labor and vocational-technical education must be mutually reinforcing. A Massachusetts study states that education and the private sector must work with ". . . each other to mutual advantage" (Vocational-Technical Education in Massachusetts, 1986, p. 4). For example, educators can assist employers in ". . . specifying exactly how workers use basic skills and where deficiencies exist" (Thompson, 1986, p. 27). Such knowledge would benefit employers because they are the ultimate recipients of improved education.

Establishing such partnerships may not be easy. "It is sometimes difficult to interest businesses and schools to participate in partnerships. Businesses usually find it easier to write a check and the teacher generally gets the responsibility as an add-on to an already busy schedule" (interview with a Chamber of Commerce member). However, the majority of interviewees keenly felt the need and potential value of such relationships. Some believed that the State Department of Education should lead the way; others suggested joint operating boards or using the services of the local chamber of commerce. But all interviewees were agreed on the importance of such relationships.

Round 2 Delphi respondents were overwhelmingly in favor of agreements with employers to guarantee placement of vocational-technical education graduates; however, only 48 percent believed such agreements were definitely or possibly feasible (see question

9 in appendix C). Although such agreements may be highly desirable, study team members perceived the likelihood of such agreements as unrealistic and did not include this idea in this recommendation. However, the idea of a state partnership with business and industry to provide technical update (question 13), was rated as both desirable (93 percent) and feasible (76 percent). By comparison, the Illinois state legislature provides funding to teachers to obtain 6-8 weeks of updating in private industry (see appendix D).

Recommendation 8:
Public Information

The State Department of Education should develop a statewide public information campaign to inform all segments of the population concerning the linkages between effective vocational-technical education programs and the overall success of the Commonwealth's economic development initiatives. This effort should highlight vocational-technical education's role in preparing an enlightened (i.e., educated) labor force with broad, transferable skills as well as job specific competencies.

Rationale. The argument that communicating the realities of what vocational-technical education can provide in the way of preparation for careers and further education will result in a more positive image for the field is supported by studies in South Carolina (What Employers Say about Vocational Education in South Carolina, 1986), Massachusetts (Vocational-Technical Education in Massachusetts, 1986), and Pennsylvania (Wade, 1984). Further support for such an endeavor is reflected in reports by the

Perkins Committee for Vocational Education (1987), the Pennsylvania Council on Vocational Education (1987), and the Blue Ribbon Advisory Panel for Vocational Education (1987). In "Making Vocational Education Better for Students" (1986), a symposium participant is quoted as saying--

> Whining and complaining about the sorry state of vocational education will kill it more quickly than anything else. By the same token, publicity that does not reflect reality will be met with derisive laughter. (p. 136)

Other participants in the same symposium stated--

> Recognize that many good things are happening in secondary vocational education--capitalize on these strengths, admit the limitations, plan for improvement, and take action! (p. 136)

> Tell students, parents, employers, and educators about the value, accomplishments, and use of vocational education in living a successful and fulfilling life. (p. 136)

The need for a marketing or public relations plan was viewed by 25 people interviewed as part of this study as an important activity not currently being conducted at the state level with vigor. Both postsecondary and secondary programs would benefit from such an endeavor.

The question of the state education agency's responsibility to disseminate information about vocational-technical education was addressed in question 1 of the round 2 Delphi instrument (appendix C). The response was favorable (97 percent).

Pennsylvania is not alone in recognizing the need for better public relations efforts. Ohio, which enjoys a largely positive image of its vocational-technical education system, also perceives a need for better public information dissemination.

Research, Planning, Evaluation, and Professional Development

Research, planning, evaluation, and professional development are functions critical to the long-range survival of vocational-technical education. The functions are essential to the maintenance of program relevance, the determination of long-range policies, the evaluation of program worth, and the preparation and upgrading of professional personnel. Current Pennsylvania efforts regarding these functions are not sufficiently coordinated, focused, or funded.

Recommendation 9: Pennsylvania Center for Research on Vocational-Technical Education and Employment

The Pennsylvania Department of Education should establish a Center for Research on Vocational-Technical Education and Employment. The four functioning vocational teacher education centers, as they currently exist, should be phased out during the first 2 years of implementation of this recommendation. Study staff suggest that the Center should conduct research and development activities concerning the following:

- o Policy analysis. The Center should identify policy alternatives for vocational-technical education in Pennsylvania, conduct research on the feasibility of these alternatives, and provide policymakers with a prioritized set of recommendations.
- o Future program directions. The Center should identify creative and innovative strategies and procedures for delivering vocational-technical education. The most promising strategies and procedures should be disseminated to appropriate audiences through a wide range of activities, including demonstration sites.

- Curriculum development. The Center should coordinate the Commonwealth's vocational-technical education curriculum development efforts, including the identification, development, and validation of competencies; the development, in concert with vocational-technical faculty, of curriculum materials and instructional strategies, disseminate, in concert with the Academy, the materials and strategies, and the evaluation of the effectiveness of the materials and strategies developed.

- Long-range program planning. The Center, with the active involvement of state and local personnel and other appropriate individuals, should develop a 10-year plan for Pennsylvania's vocational-technical education program. This plan should provide the basis for the Commonwealth's vocational-technical education programs, services, activities, and resource allocations. The long-range plan should reflect the Commonwealth's statewide emphasis on economic development and the key role vocational-technical education plays in developing human resources.

- Program evaluation. The Center should develop and maintain a comprehensive evaluation system that will provide consistent information about the effectiveness and efficiency of all vocational-technical education programs, services, and activities at the elementary, middle/junior high, senior high, postsecondary (institutes, community colleges, 4-year college, university), and adult levels. The evaluation system should provide the information needed for federal reporting, state planning, regional planning, local planning, public accountability, and marketing.

- Program coordination and articulation. The Center should identify and disseminate information about innovative practices for use in program coordination and articulation.

- Professional personnel development. The Center should develop creative approaches, conduct experiments, and evaluate the effectiveness and efficiency of conducting innovative professional personnel development activities. The Center should also, through an academy, conduct professional needs assessment, design and plan programs and activities to meet professional development needs, and coordinate the delivery of the professional development programs, services, and activities. At times, the Center's Academy should be the sole source of some programs and activities, but otherwise should collaborate with other institutions in the delivery of programs and activities or competitively assign the delivery of other programs and activities to other institutions as best meets the needs of the profession.

- Dissemination. The Center should design and conduct a a number of research and development dissemination activities targeted at significant audiences.

Study staff believe that the Center should be established at a major research-oriented university because of the built-in capacity that such an institution can offer. This university should have a strong capacity in such fields as sociology, psychology, philosophy, anthropology, labor and human resources, economics, education, and other fields that have the potential for contributing knowledge critical to the resolution of problems in vocational-technical education. The host university should have a world-class literature reference capacity and be willing to strengthen its acquisitions in vocational-technical education. Additionally, the host university should be willing to provide appropriate facilities and equipment for housing the Center. The Center should engage in cooperative research and development efforts with other universities and local institutions. Administratively, study staff suggest that the Center--

- should be responsible to the Commonwealth's Commissioner for Vocational-Technical Education;
- should have an advisory board of 15 members, including university researchers and vocational-technical faculty, representative of stakeholder groups, such as AVTSs, community colleges, technical institutes, high-technology centers, business, industry, and labor;
- should have a minimum annual funding base of $2 million, adjusted for inflation;
- should obtain staff members from appropriate disciplines within the host university; from various state government agencies (selected staff should have rotating appointments with the Center and their home state agency); and from the education, policy, planning, evaluation, and research communities within Pennsylvania and across the country. Key staff should be offered tenure-accruing appointments at the host institution;

- should have a director whose appointment would be made by the host university in agreement with the Commonwealth's chief executive officer for vocational-technical education; and
- should conduct research and development activities designated by the Commonwealth's chief executive officer for vocational-technical education and nondesignated studies identified by the Center staff with the advice of the Center Advisory Board.

Rationale. The capacity to explore alternatives in program design, implementation, delivery, and evaluation are important to a dynamic educational enterprise. The Pennsylvania Council on Vocational, in its Eighteenth Annual Report (1987), urges the Pennsylvania Department of Education to ". . . consider expanded research efforts to assess the impact of programs and activities and to support state level planning and decision making" (p. 8). The synergy generated as a result of placing policy analysis, future program directions, curriculum development, long-range planning, program evaluation, program coordination and articulation, professional personnel development, and dissemination functions in one agency staffed by researchers from a range of disciplines cannot be duplicated by efforts conducted in relative isolation. Study staff recommends a university setting because it provides a library capacity as well as access to individuals who can contribute to the research endeavors.

To maintain currency in the field of vocational-technical education and provide the best possible programs for Pennsylvania's youth and adults, research relevant to the Commonwealth's unique needs and characteristics must be conducted. A number of issues requiring such research endeavors were mentioned in the course of a review of previously conducted Pennsylvania studies and the conduct of interviews. The issues mentioned in the documents include exploring the cluster curriculum concept for secondary vocational-technical education (Pennsylvania Council on Vocational Education, 1987 and the Perkins Committee for Vocational Education, 1987); the usefulness of the cross-competency concept (Pennsylvania Council on Vocational Education, 1987); the design of different staff training programs, including preservice and inservice (Perkins Committee for Vocational Education, 1987 and the Blue Ribbon Advisory Panel for Vocational Education, 1987); and staff development to improve and upgrade teacher skills (Blue Ribbon Advisory Panel for Vocational Education, 1987). Issues discussed in interviews include staff development, curriculum development, dissemination of promising practices, ". . . intelligent analysis of data regarding openings in the job market, emerging technology, longitudinal tracking of graduates, etc." (interview with a community college staff member), adult learning, the type of curriculum needed by GED students, and the needs of teachers.

Question 9 of the round 2 Delphi instrument directly addresses the desirability and feasibility of an R&D center as described in this recommendation. Sixty-eight percent of respondents rated this effort as "very desirable" or "desirable;" 65 percent believed it either definitely or possibly feasible, with 19 percent indicating "no judgment" or failing to respond to its feasibility.

Professional development via an annual statewide conference received mixed reviews: 56 percent thought it a good idea, but only 32 percent believed in its feasibility. Professional development coordinated by an R&D center was believed by study staff to be a more practical and efficient means of meeting the specific needs of educators at a regional level.

Vocational-technical educators in Pennsylvania are looking to their state education agency to help them maintain a progressive emphasis in vocational-technical education (question 4 of the round 2 Delphi instrument). State agency sponsorship of the R&D center described in this recommendation would fill this need.

Recommendation 10:
Teacher Degree Requirement

By 1996, all vocational-technical education faculty at the secondary level should have a baccalaureate degree from an NCATE-approved institution. This degree should encompass pedagogical preparation and a broad liberal arts emphasis as well as providing for the acquisition and/or validation of technical competencies in the field for which certification is being sought. To assist in this effort, study staff suggest that the Pennsylvania Department of Education--

- provide individual scholarships and fellowships to persons pursuing a baccalaureate degree, with special emphasis on individuals currently teaching but not possessing a baccalaureate degree;
- provide the staff necessary to recruit individuals to enter the baccalaureate degree program;
- set goals for current teachers to meet in obtaining certification;

- work with colleges and universities to coordinate and ensure that appropriate programs are available at NCATE institutions; and

- coordinate with the Bureau of Teacher Certification.

The Pennsylvania Department of Education could elect to deal with the question of the teacher degree requirement in a different fashion. However, to do so is to delay dealing with the inevitable. Study staff feel strongly that all teachers should exemplify the best that education can provide in order to educate the whole child by being able to integrate as many fields of knowledge as possible into instruction. The Commonwealth should not place either its educators or its students at a disadvantage for their roles.

Rationale. The literature is replete with calls for increased teacher competency as a means to develop our economic competitiveness in the world market. And no single area of education is more directly related to economic productivity and competitiveness than vocational-technical education.

Silberman (1986) cites increasing the quality of instructors as one of four obvious ways to improve secondary vocational-technical education. Franklin B. Walter (1986), Superintendent of Public Instruction in the Ohio Department of Education, advocates dramatic improvements in the education and training of classroom teachers. The Pennsylvania Economic Development Partnership Education and Job Training Task Force (1988) calls for an increase in ". . . the professional development of vocational educators . . ." (p. 18). Curtis (n.d.) states that, ". . . for the most part, the power base in vocational education has been built

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on a structure of program specialist first, vocational educator second, and educator third--a fragile hierarchy that will have to be inverted if vocational education will survive the challenges of the 1990s" (p. 1). Curtis continues his argument for a more broadly educated vocational-technical education faculty by stating that "the skills of vocational leaders to compete in an academic or political world are deficient at a time when decisions about vocational education are being made in these environments" (p. 2).

The Study Team on Teacher Preparation (1988) divided the skill and knowledge areas that a teacher should be prepared in into the following categories: intellectual skills, pedagogical knowledge, subject-area knowledge, and instructional skills. Vocational-technical faculty at the secondary level who come to the profession without baccalaureate degrees are tested for their knowledge of technical skills and provided basic pedagogical training prior to entering the classroom, but may or may not have developed the intellectual skills, in-depth instructional skills, in-depth pedagogical knowledge, or even all the subject-area knowledge described in the report as necessary. To insert an individual into a milieu for which he/she is unprepared is unfair to both student and instructor. If a baccalaureate degree program is not necessary for a vocational-technical education instructor, then it follows logically that our math, science, English, and social studies teachers, for example, do not need baccalaureate degrees either! Rather, education or training in their subject-matter speciality should suffice.

We must remember that vocational-technical education is more than teaching a student to weld or clean a carburetor or fix a leaky pipe. More and more, our students must be able to read, write, compute, problem-solve, and analyze to a higher degree than before. This requires teachers who can communicate scientific knowledge and explain technology (interview with a teacher educator). Our students as well must be prepared for further education and training and retraining as never before. To prepare youth adequately for the changes that will come--and the changes will come--in all occupations, we must have the best-prepared faculty possible. Our instructors must be able to serve as role models and present a positive image of what it means to be a teacher as well as someone successful in his/her field of endeavor. In short, an instructor represents not only the the occupational area from which he/she comes, but also the field of education. If we want truly well-prepared workers, we must provide them with teachers who can teach professionally and excellently, as well as perform vocational tasks professionally and excellently.

Many individuals from the regional offices, teacher education institutions, professional associations, business and industry, and the state department of education were in agreement on this issue: vocational-technical education faculty at the secondary level are in need of more education than some of them are currently required to possess at the time they begin teaching.

Question 10 of the round 2 Delphi instrument requested responses to all beginning vocational-technical education teachers should have a baccalaureate degree. Sixty percent rated this as "very desirable" or "desirable." In Illinois teacher credentialling requirements have become more stringent (see appendix D).

Recommendation 11: Accreditation of AVTS

All area vocational-technical schools should be accredited by an accrediting agency officially recognized by the U.S. Department of Education. The technical centers and technical institutes proposed in these recommendations should be accredited as soon as it s feasible to so so. Study staff suggest that the Pennsylvania Department of Education and the proposed regional superintendents for vocational-technical education provide leadership and technical assistance to local schools for the accreditation effort.

Rationale. The accreditation of educational institutions is a commonly accepted and practiced procedure. It is one of the processes by which educational institutions gain recognition as a bona fide part of the education system. Accreditation can only add to an institution's credibility. The report by the Blue Ribbon Advisory Panel for Vocational Education (1987) supports this recommendation. In Ohio, joint vocational schools, which are the equivalent of Pennsylvania's AVTSs, are accredited by the North Central Accrediting Association.

Recommendation 12: Facility and Equipment Planning

The Pennsylvania Department of Education should develop a strategic plan for ensuring that vocational-technical education facilities and equipment are state-of-the-art and optimally

utilized. Study staff suggest the following as means to achieve this goal:

- An up-to-date inventory of facilities and equipment should be maintained.
- Mechanisms should be developed for sharing underutilized facilities and equipment.
- Institutions should seek private sector enterprises willing to share facilities and equipment for educational purposes.
- Plans should be developed for ensuring the replacement of out-of-date equipment. These plans should provide for additional state equipment funding for those districts/regions with limited wealth.

Rationale. Interviews with individuals from all segments of the education enterprise in Pennsylvania emphasized the need to improve and update equipment. Because not all districts are sufficiently affluent to provide for complete equipment or facility updating, the need for state and private support for equipment purchase is urgent in some areas. Rapidly changing technology has contributed to the problem. As one teacher educator stated, "If we have outdated equipment, how can educators convince business of the quality of training of the work force?"

Round 2 Delphi respondents (92 percent) believe it "very desirable" or "desirable" that the state develop a system for equipment replacement and funding (question 10, appendix C). In Ohio, state legislation provides for funding of up to 50 percent of equipment costs (appendix D).

Recommendation 13: Compatible Database

The chief executive officer for vocational-technical education should cooperate with other Pennsylvania state departments and agencies to create a compatible database for up-to-date labor market, job availability, and related information to be used by all. At a minimum, these departments should include Education, Commerce, Labor and Industry, Public Welfare, and Community Affairs.

Rationale. In order to "provide program offerings which are based upon employment opportunities in the region or State, and not simply on student interest" (Northwest Regional Education Laboratory, 1986, p. 14), educators need information about current and projected job markets. Also, by having compatible databases, the follow up of vocational-technical education graduates would be more feasible than it is now.

A compatible database would assist local providers of vocational-technical education in the follow-up of students after graduation. Ninety-five percent of round 2 Delphi respondents believe follow-up to be important; comments indicate it is currently difficult to do so. The state education agency would also benefit from the information that such a compatible database would provide.

Program Development

The Commonwealth of Pennsylvania has extensive vocational-technical education offerings at the secondary level. In some geographical areas of the Commonwealth, postsecondary and adult level offerings are minimal. Additionally, the Commonwealth needs to ensure that it provides its citizens opportunities to prepare for the rapid advances in high technology.

Recommendation 14:
High Technology Centers

Three new high technology centers, in addition to the existing center currently located in Williamsport, devoted to education for occupations in high technology fields, should be established. Study staff suggest that these high technology centers--

- be located in three different areas of the state so as to provide access to as much of the population as possible;
- provide residential facilities for those students who live too great a distance from the center to commute;
- all be branch campuses of a single major university selected on the basis of proposals submitted to the State Board of Education;
- be funded by the Commonwealth, including all initial start-up costs for facilities, equipment, personnel, and general operation with subsequent costs of operation to be borne in part by student tuition, not to exceed 15 percent of the Center's operating budget;
- maintain close advisory ties with education and business/industry, as well as state agencies involved in economic development and labor market projections;
- provide articulation to enable students to obtain a baccalaureate degree;

- work with the Pennsylvania Center for Research on Vocational-Technical Education and Employment to develop curriculum, coordinate the professional and technical update of faculty, and determine future directions of high technology; and
- cooperate with the Pennsylvania Center for Research on Vocational-Technical Education and Employment in conducting annual program evaluations.

Rationale. If Pennsylvania is to attract new business and industry to replace those it has lost, a trained work force and the capacity to train additional personnel are vital. Because ". . . the Commonwealth is now attempting to position itself to take economic advantage of the rise in high technology . . . industries" (Herr, 1988, p. 84), the capacity to train individual in high technology occupations is crucial to this economic thrust. The creation of three high technology centers would provide that capacity. Such a center could also assist in the updating and upgrading of vocational-technical education instructors. This recommendation is supported by the Pennsylvania Council on Vocational Education (1987) recommendation to ". . . expand the number of institutions offering postsecondary and adult vocational education, particularly in the more sophisticated and technologically advanced skill areas" (p. 9).

Recommendation 15: Technical Institutes

In those parts of the state not currently served by community colleges or branch campuses, area vocational-technical schools (AVTSs) should be eligible for designation as technical institutes. Study staff suggest that these institutes be selected by the regional vocational-technical education board, which is described in recommendation 1, and the selection approved by the Pennsylvania State Board of Education. Study staff further recommend that AVTSs so designated--

- be accredited by an agency recognized by the U.S. Department of Education;
- offer adult training and retraining programs of both short- and long-term duration;
- receive the same funding from the state as community colleges for the education/training of adults;
- be governed by the regional vocational-technical education board (except where contiguous vocational-technical education regions exist that are not served by community colleges--these regions may join together to organize a technical institute);
- employ faculty who have earned at least a baccalaureate degree;
- facilitate articulation with community colleges for the benefit of those students who wish an associate degree;
- enter into agreements with a community college(s) willing to provide related academic subjects at the AVTS campus;
- pay for use of AVTS facilities;
- provide placement and counseling services, either directly or indirectly through coordination with another institution or agency; and
- coordinate with the Pennsylvania Center for Research on Vocational-Technical Education and Employment for curriculum development, as well as other appropriate services.

Rationale. The need for postsecondary vocational-technical education is largely unmet in parts of Pennsylvania. The legislation that was passed to create community colleges has been in existence for a number of years; if those areas currently without community colleges intended to sponsor them, this accomplishment would have been completed by this time. It is obvious that, for whatever reason, some areas of the state have chosen not to create community colleges.

The Blue Ribbon Advisory Panel for Vocational Education (1987) recommends that all persons, statewide, have access to secondary and postsecondary vocational education programs. Gilhool (1988) suggests that the AVTSs in those counties currently without community colleges become technical institutes to provide further skills training through use of existing faculty, facilities, and equipment.

The recommendation presented in this study carries this suggestion one step further by encouraging the linkage between such AVTSs technical institutes and community colleges. It is imperative that duplication of services not be created, and this recommendation avoids that possibility.

Great concern about this topic was expressed in interviews with community college, AVTS, local advisory council, intermediate unit, and State Department of Education personnel. The problem was agreed upon; the method of solution was not. At the time the interviews were conducted for this study, Schuylkill County was advocating the transformation of AVTSs into technical institutes; Schuylkill County does have a community college. An intermediate unit director, reflecting on this issue, stated that AVTSs do have an appropriate role as technical institutes in areas where there are no community colleges. However, AVTS directors and community college personnel were divided on this issue. AVTS directors see the option for technical institute status as a means to gain more equitable reimbursement for the adult students they serve. Community college staff view the creation of technical institutes at AVTSs as an encroachment upon the population they believe they should serve, as a threat to their funding base, and as a potential duplication of services. However, according to a State Department of Education staff member--

> An AVTS technical institute is not a threat to a community college. First, they would not be providing duplicate programs because the program approval process would require proof of need. Second, a local school board would not agree to shoulder the financial burden of an AVTS technical institute if it wasn't necessary and nonduplicative. (interview)

Also, with the implementation of a regional governance structure, as recommended in this study, such duplication would not be permitted.

The statement that "all area vocational-technical schools should be designated as technical institutes" (question 15 of the round 2 Delphi instrument) was divided between positive (41 percent), negative (31 percent), and no judgment/no response (28 percent). Question 18 of the instrument regarding a uniform funding formula for AVTSs and community colleges was evenly split between desirable and no judgment/no response (39 percent each); negative responses constituted 22 percent of the responses.

In Ohio, 21 JVSs are full-service adult centers, accredited by the North Central Accrediting Association. Adult students there are eligible for PELL grants. It would help resolve some of the funding problems in Pennsylvania if similar measures were applied to the technical institutes.

Curriculum

The curriculum provides the building blocks by which learners acquire the competencies needed to achieve their career goals. The curriculum must be built on a strong research base and coordinated at all levels so that learners can progress from one level to another without wasting time and money. The curriculum must reflect the fact that workers now compete in an international economy that is heavily service oriented and very technologically advanced.

In the executive summary of Workplace Basics: The Skills Employers Want, the American Society for Training and Development (1989) identified seven major groups of skills needed by nonmanagerial workers. These skills--knowing how to learn; reading, writing, and computation; listening and speaking; creative thinking and problem solving; self-esteem, goal setting/motivation, and employability/career development; interpersonal skills, negotiation, and team work; and organizational effectiveness and leadership--must become vital concerns addressed in the vocational-technical education curriculum.

Recommendation 16:
Elimination of General Education Track in Secondary Schools

In the secondary schools of Pennsylvania, the general education track should be phased out over a period of 4 years. All students should be prepared for further education and careers.

Rationale. General education in today's secondary schools is an anachronism. One teacher education administrator and one State Department of Education administrator labeled general education "a disgrace." The general education track in the secondary schools is viewed largely as a program that prepares students for neither entry into the work force nor further education and, therefore, should be abolished (interview with an employer). "It's not just graduating from high school that counts, it's also if the individual is prepared for the next step." The central office administrator who made this comment, in checking statistics, stated that the largest percentage of dropouts in his school system comes from those students following the general education track.

The school system in Pittsburgh is in the process of eliminating the general education track for its secondary students. In commenting on this decision, a teacher educator termed it "probably the most meaningful thing that has happened since the Smith-Hughes Act. . . ." In this individual's experience, students who graduate from the general education program are relegated to meaningless jobs. Ohio is one state that is moving toward the elimination of the secondary general education track (see appendix D).

Recommendation 17: Vocational-Technical Education in Grades 8, 9, and 10

Students should receive instruction in systems of technology, human relations and decision making, and career selection and development in grades 8, 9, and 10, respectively. These courses and the specific topics to be included should be mandated by Pennsylvania State Board of Education, with curriculum development/adaptation being done by the Pennsylvania Center for Research on Vocational-Technical Education and Employment. Suggested topics are as follows:

- The systems of technology course would acquaint students with the systems and subsystems in technology, how technology affects people and the environment, how to use technology to solve problems, how to control technological systems, and how technology may affect society in the future. Content should integrate theory with hands-on activities to solve problems. To address such topics adequately would require two semesters of classes that meet one period per day. It is feasible to provide professional development programs through the Pennsylvania Center for Research on Vocational-Technical Education and Employment to prepare current industrial arts teachers to teach this course; they possess the hands-on skills and understanding of technology needed to provide a course that is both theory and practice. Colleges and universities in Pennsylvania that currently prepare industrial arts teachers, however, may wish to rethink/revise the preparation of these teachers for the long term.

- Human relations and decision making would deal with the processes of decision making, problem solving, and resource management; understanding self and others, including how to get along with parents, siblings, and fellow students; and living skills. To address these topics adequately would require, at minimum, one and one-half semesters of classes that meet one period per day. It is feasible to provide professional development programs through the Pennsylvania Center for Research on Vocational-Technical Education and Employment to help currently employed home economics teachers to teach this course; they possess the skills and understanding necessary to provide a course that includes theory and practice. Colleges and universities in Pennsylvania that currently prepare home economics teachers, however, may wish to rethink/revise the preparation of these teachers for the future.

- The career selection and development course would be designed to serve all students and help them assess their interests and abilities in the context of career clusters. This course would acquaint students with the realities of the world of work--what employers expect in the way of cognitive, psychomotor, and affective skills--as well as

> career ladders and the opportunity for lifelong learning. An overview of each of the clusters would be presented, and students would select two to three clusters to explore more fully, including shadowing people in prospective careers. At the end of the year, each student would meet with the guidance counselor to update the individualized education program that will guide the student in obtaining the education needed to reach the goal desired.

Rationale. After conducting an extensive review of relevant literature, the Northwest Regional Educational Laboratory concluded that ". . . employability skills such as dependability, the ability to get along with others, and an understanding of the world of work are important. . . ." (1986, p. 15) and are appropriate outcomes for vocational-technical education. Knold (1986) states that ". . . positive work habits and attitudes are considered by employers to be the most important competencies for individuals . . ." (p. 12).

One employer interviewed is very concerned about students acquiring a proper work ethic. The Pennsylvania Economic Development Partnership Education and Job Training Task Force (1988) calls for the inclusion of job preparedness and job counseling into the curriculum of high schools wherever possible because, according to Thompson (1986), "employers place a high value on the attributes exemplified by good workers" and, therefore, "schools should develop these attributes for both college-bound and work-bound students" (p. 28). Carnevale et al. (1988) include personal and career development skills, interpersonal skills, and team work in a list of competencies that are today as important as basic academic skills.

The consensus of the interviewees was that students are not currently receiving sufficient information and counseling regarding career opportunities and vocational-technical education programs to enable them to plan their educational paths. On their own, without instruction, the majority of students are unaware of the various career and occupational options or the educational pathways they must pursue to attain a particular goal. At the current time, we are asking our youth to make important decisions based on scant knowledge. It is wasteful to the student, the school, and the Commonwealth to require that students make important decisions without adequate information.

New York's movement in middle/junior high school curricula is widely known and is the basis of the curriculum suggested in this recommendation. Illinois is another state that uses an orientation component at grades 9 or 10 (see appendix D).

Recommendation 18: Vocational-Technical Education in Grades 11 and 12

Grades 11 and 12 should provide students the opportunity to develop specific skills in a cluster or area within a cluster. Attainment of competencies rather than the number of hours of instruction should be the criteria used to determine completion of a program. Learner completion of an activity should be determined by the individual's ability to perform satisfactorily the cognitive, affective, and/or psychomotor attributes essential for progression to the next level of learning or for satisfactory performance in a work setting.

Grade 12 may be a continuation of grade 11, or, if the student is ready, involve articulation with the closest community college or technical institute, as appropriate, or an apprenticeship program.

The related academic skills should be taught with as much rigor as individual student capability will allow. In addition, vocational-technical faculty should include instruction regarding the application of academic skills, either directly or indirectly via coordination with the appropriate academic teacher. Vocational-technical courses should be competency-based and should deal with the cognitive, affective, and psychomotor domains related to the occupation. The Pennsylvania Center for Research on Vocational-Technical Education and Employment could develop curriculum for adoption or adaptation in local schools.

Rationale. The debate regarding the teaching of general occupational skills related to a cluster of occupations versus the teaching of specific occupational skills has not yet been resolved. It is logical to assume that one method will be suitable for some occupations and the other method will be suitable for others. The current consensus, however, is that broader occupational skills, bolstered with basic communication, computation, and problem-solving skills, is the best preparation for students at the secondary level of education (Northwest Regional Educational Laboratory, 1986). The Pennsylvania Economic Development Partnership Education and Job Training Task Force (1988) deems it ". . . essential that secondary school programs are designed to prepare students for entry-level employment and for .

the development of more advanced vocational skills" (p. 11) Logically, this would than leave the instruction in specific skills to the postsecondary schools. However, in the decision-making process, the fact that "the majority of students do not attend postsecondary training so their opportunity for vocational education terminates at the end of high school" (Hanson, 1984, n.p.) must be borne in mind.

A concern was expressed by a teacher educator that ". . . vocational education is in danger of moving out of the high school due to the pressures of powerful groups that have honest philosophical differences and who believe that money is better spent at the postsecondary level. This, if it is accomplished, will be particularly hard on minority and disadvantaged students who have taken advantage of free secondary education and can't afford to wait to start earning and can't afford the tuition." These students must be prepared for immediate employment and encouraged to obtain further education.

Vocational-technical education at the secondary and postsecondary levels has the capability to reinforce basic skills and to enable students to better comprehend abstractions. To "start from the concrete and go to the abstract, the fundamental pedagogy of vocational education, to begin with the real, to engage learning around things that are palpable, that can be touched and seen and smelled and worked with, effectively reaches the greatest range of learning styles among children" (Gilhool, 1988, p. 8). And, one might add, among adults.

Employers interviewed for this study stated that ". . . teaching the application of basic academic skills in various occupations . . ." is an important part of vocational-technical education. Thompson (1986) notes that "basic physical science knowledge is important for most jobs. . . ." (p. 11). It is important, therefore, to reinforce the basic skills students have learned earlier in their schooling, and to apply "academic" subject matter as appropriate to the vocational subject matter.

School administrators, in the opinion of one State Department of Education official, believe that all vocational-technical students are unable to handle a rigorous academic program and, consequently, vocational-technical students receive a second-rate academic education. The importance of the expectations held by administrators and teachers is well documented in the literature and summarized in Literature Review on Improving Secondary Vocational Education Effectiveness (Northwest Regional Educational Laboratory, 1986). "Vocational education must participate as a full partner in the national campaign for excellence in education" (Hanson, 1984, n.p.).

Individuals interviewed in the course of this study made numerous suggestions regarding vocational-technical education at the secondary level. An emphasis on affective skills was encouraged (interviews with AVTS director and teacher educator). Determining mastery of skills (cognitive, psychomotor, and affective) by reviewing competencies rather than amount of time spent was proposed by such individuals as a regional office staff member, a State Department of Education administrator, a State Department of

Education staff member, a teacher educator, and a state agency staff member. These are questions that should be addressed by the staff of the research and development center proposed in these recommendations.

Questions 25, 26, 27, and 28 of the round 2 Delphi instrument dealt with secondary vocational-technical education curricula. In summary, respondents believe it to be--

- highly desirable (93 percent) and feasible (71 percent) to establish apprenticeship programs in conjunction with vocational-technical education programs;
- desirable (58 percent) and feasible (52 percent) to use a cluster approach at the secondary level and emphasize critical thinking and enhancement of basic skills;
- desirable (62 percent) and feasible (54 percent) to use competency-based programs and remove the hour requirements; and
- very undesirable (81 percent) but feasible (54 percent) to discontinue vocational-technical education at the secondary level.

Recommendation 19:
Interdisciplinary Curriculum

An interdisciplinary curriculum should be implemented that encourages the integration of academic education and vocational-technical education. Wherever possible, academic and vocational-technical teachers need to relate the teaching-learning experiences that students encounter concerning reading, writing, oral communications, and mathematics skills with the application of these skills in work-related settings. Relating the academic and vocational-technical teaching/learning experience will require coordination by teachers for curriculum planning and sequencing. Special efforts will be required to identify the teaching/learning instances where the relationships between theory and practice can be shown, thereby strengthening the relevance of the learning experience for all students. Educational planners for these activities should consider incorporation of team teaching, identification of core skills, and expanding hands-on learning experiences for all students.

Rationale. Goodlad states that "vocational education, including guided work experience, is an essential not merely an elective part of general education. . . . This means that vocational education is for all students, not just an alternative to academic studies for the less academically oriented. . . . I want the college bound students to include vocational studies too, just as I want to be sure that students not going to college secure a balanced and strong program in academic subjects" (Gilhool, 1988, p. 13). Former Secretary of Education Bell (1984), in commenting on the excellence in education movement, said:

> I see no conflict in our advocacy of excellence in academic education at the elementary and secondary levels and our commitment to a strong system of vocational education in our secondary and postsecondary schools. . . . The new world provides a major challenge to complacency in vocational education and at the same time an unprecedented opportunity to bring together the strengths of vocational education and basic academic learning to serve our youth. (p. 33)
>
> Surely we can do better to integrate the basic skills of language, reasoning and problem solving, mathematics, natural and social sciences with the content of vocational programs. Surely the teachers of subjects in the New Basics and those responsible for vocational curricula can find better ways to meld their efforts on behalf of their students. (p. 34)

Marc S. Tucker, chairman of the National Center on Education and the Economy in Rochester, New York, ". . . maintains that most kids don't learn well by listening to a lecture or reading the text" (Ehrlich, 1988, p. 135).

Other studies and reports confirm Goodlad's and Bell's advocacy of the integration of academic and vocational subjects. According to Santo (1984), many states are trying to keep open both academic and employment options for their students by integrating academic and vocational education for their students. The National Commission of Secondary Vocational Education (n.d.) states that--

> What is really required today are programs and experiences that bridge the gap between the so-called "academic" and "vocational" courses. The theoretical and empirical bases as well as the actual and applicative aspects of academic courses and vocational courses must be made explicit and meaningful. This calls for a joint effort between the academic teacher and vocational teacher. (p. 13)

The Blue Ribbon Advisory Panel for Vocational Education (1987) recommends the integration of vocational and academic curriculum. An interview with a member of a professional association in Pennsylvania recommends the integration of vocational and academic curricula as one way to ensure that vocational-technical education students receive an excellent education. Integration of academic and vocational-technical education would also solve the problem of students, once having entered an AVTS, being scheduled into general education courses rather than academic courses, thus making it impossible for them to take a subject such as algebra, which could be more appropriate to a particular vocational-technical program. This was the situation described in an interview with community college students. The integration of academic and vocational subjects would also better prepare students to obtain further education.

Question 26 of the round 2 Delphi instrument stated that curricula offerings at AVTSs should be comprehensive and integrate vocational-technical and academic education. Seventy-three respondents viewed this as desirable; 54 percent, as feasible. As well, Minnesota is moving toward and integration of academic and vocational-technical education.

Recommendation 20: Student Educational Development Plan

Guidance counselors in all school districts should, with the participation of each student and parent(s) or legal guardian(s), construct and implement an educational development plan, beginning no later than grade 8, with a yearly review and update, including the opportunity for major alterations after the student has completed the career selection and development course. Each plan should include the postsecondary education opportunities appropriate to the career goal(s) each student desires to attain. Counselors should help students select vocational-technical and academic courses that are congruent with their immediate and long-term needs, their aptitudes, their interests, and their abilities so that all students are given the opportunity to work up to capacity.

Rationale. As discussed in the rationale section for recommendation 17, the majority of students are not prepared to make decisions regarding their educational future and relate that to their occupational future. A branch campus administrator commented that some students select programs at the AVTS for reasons unrelated to the reality of being able to find a job in that field upon graduation. The administrator's concern is that these students are not being offered proper guidance regarding their options. Time must be spent assisting and encouraging students to examine options open to them and plan the best educational method for reaching the highest goals they, as individuals, can.

SUMMARY: STRIDING TOWARD THE FUTURE

This report has provided a comprehensive examination of vocational-technical education in Pennsylvania and has created a coordinated set of recommendations with which to address the diversity of the Commonwealth. Obviously, this is not the first nor will it be the last study that deals with vocational-technical education in the state. Few of these findings and recommendations are new. They are, for the most part, points of emphasis that have been stated by others.

This report, however, provides evidence for them and establishes a structure toward their implementation. It is dedicated to reshaping previous ideas and approaches with new perspectives that are responsive to the strengths of the current system, and also the changes that are occurring and are projected to take place between now and the year 2000.

The substance and implications of the proposed recommendations call for all segments of government with the full partnership of industry and business to support and provide leadership for reform and action. Such reform will take much time and unwavering commitment. It will require energetic, progressive, and dedicated action. Contribution and endorsement will be needed from parents, teachers, and the school boards; from the AVTSs, colleges, and universities; from local, county, regional, and state officials; from teacher's, counselor's, and administrator's organizations; from industrial and labor council; and from the students themselves.

Essentially, the recommendations are directed toward the responsiveness, efficiency, and effectiveness of the system of vocational-technical education. The reforms indicated are not ideological positions. Rather, they address the minimum needs of Pennsylvania's work force to ensure their competitiveness. By this criterion, the only standard utilized for their inclusion is the potential for their functionality. They include changes in the curriculum of the state's secondary and postsecondary vocational-technical programs.

To effectively change curriculum, however, the system of program delivery must be modified. This must be based on reliable data, compiled by an independent unit of sufficient resources and having access to information reflecting the diversity of the Commonwealth. To assist it, there must be a means by which education, business, industry, and labor can provide improved data for planning. This calls for broad partnerships between educators and employers on an ongoing basis. Such operational partnerships will result from improved and expanded vocational-technical education planning at the state, regional, and local levels. Public and private planning collaboration will better ensure that future instructional facilities, equipment, and curriculum reflect employment needs in the future.

Concurrent to curriculum and classroom improvements is the need to prepare staff to deliver the new curriculum. All teachers, counselors, and administrators of tomorrow must know the requirements and operation of the labor market, be competent in effective application of this information, and be held accountable for its effect upon students. This will demand modernizing the teacher preparation programs, improved requirements for staff credentials, accreditation of programs, and instructional and leadership process.

Equality and efficiency of program access is important as well. This will call for the examination of the current access problems within the area vocational-technical schools (AVTSs), high technology center system, and programs within the comprehensive secondary schools. Improved use of existing facilities and the creation of other centers and institutes is strongly suggested. As well, middle school students need to be exposed to the nature, benefits, and opportunities inherent in vocational-technical education. Requirements for structured career and educational plans on the part of each student should be delivered through structured exposure to decision making, career planning, skill development, and the range of program options available to them and benefits of participation. Further, an examination should occur regarding the requirements, hours, course sequence, etc., needed to demonstrate competency or program completion. The demands of the new labor market might well require an updated formula for student competence certification.

Clearly, the report addresses the substance of needed improvement in all these areas. However, the study also makes clear the linkage between these reforms and those concerning the image, governance, structure, and leadership of vocational-technical education. Vocational-technical education must be an equal partner in policy and decision-making with other aspects of education at the highest levels. This will call for streamlining the governance structure, establishing more visible leadership at the state level, and empowering the regions to better address their own needs and capacities. Ultimately, this study makes clear that if long-lasting educational reform at the local level is desired, a no less comprehensive reform is needed in the governance and leadership of education. This report offers established measures with which to make these changes.

Historically, Pennsylvania has helped individuals exercise personal control over their lives through its commitment to vocational-technical education. As such, it continues to hold significant potential as a major contributor in building and maintaining a vibrant, dynamic future for all individuals in the Commonwealth. As the Commonwealth enters the 21st century, it must do so with a resurgent commitment to and value of both liberal and vocational-technical preparation and the realization that its articulated delivery is not a simple one. Indeed, it is made no easier by the fact that the ultimate source of the changes will have to be one of the structures in which reform is required: the state government of Pennsylvania. As such, the temptation will exist to have a major controversy erupt, with this report taking its place beside all of its predecessors that have proposed the same types of changes. Problems will continue to foster and grievances will mount, for no action will have been taken to remediate them. Demands for redress will be heard, prompting action toward yet another study. A new report will survey the state and identify many of the same things stated in this and other reports.

We propose an alternative scenario. We suggest that the dynamic changes taking place in the workplace be decisively met with equally dynamic actions by the education community. We further propose that these actions be institutionalized by the establishment of a complementary structure capable of reinforcing that change. Finally, we suggest that vocational-technical education in the Commonwealth of Pennsylvania be provided on a par with its importance to the state and its people. Again, less comprehensive solutions are available. However, it is our utmost hope that the evidence from the study be carefully considered for it represents the voice of the educational community in Pennsylvania.

This report has met all the conditions for which the study team was commissioned. Along with the identification of problems in the vocational-technical education system and their solutions, is its underlying strength. It is to this strength that Pennsylvanians have come to rely, constituting the best and brightest hope for the Commonwealth's work force of the future.

APPENDIX A

ECONOMIC AND DEMOGRAPHIC SIMILARITIES TO PENNSYLVANIA OF FIVE SELECTLED STATES

TABLE 1

POPULATION OF PENNSYLVANIA AND SELECTED STATES

State	1986	Ages 18-24 1986	Estimated Ages 18-24 2000
Pennsylvania	11,888,000	1,328,000	966,000
Illinois	11,552,000	1,317,000	1,081,000
Michigan	9,145,000	1,083,000	855,000
Minnesota	4,214,000	487,000	412,000
New York	17,772,000	2,034,000	1,594,000
Ohio	10,752,000	1,215,000	962,000

SOURCE: U.S. Bureau of the Census (1987)

TABLE 2

AGE DISTRIBUTION BY PERCENTAGE OF PENNSYLVANIA AND SELECTED STATES

State	0-17	18-24	25-34	35+
Pennsylvania	23.9	10.8	16.8	48.5
Illinois	26.2	11.0	17.9	44.9
Michigan	26.7	11.5	17.8	43.9
Minnesota	26.2	11.1	18.4	44.4
New York	24.5	11.1	16.8	47.6
Ohio	26.3	11.0	17.3	45.5

SOURCE: The Chronicle of Higher Education Almanac (1988)

TABLE 3

POPULATION IN MSAs AND PMSAs OF PENNSYLVANIA AND SELECTED STATES

State	Percentage in MSAs	Percentage in PMSAs
Pennsylvania	30.3	60.1
Illinois	29.7	63.9
Michigan	20.9	50.3
Minnesota	54.5	0.0
New York	16.8	70.7
Ohio	38.0	41.4

SOURCE: U.S. Bureau of the Census (1987)

TABLE 4

RACIAL/ETHNIC DISTRIBUTION BY PERCENTAGE OF PENNSYLVANIA AND SELECTED STATES

State	American Indian	Asian	Black	White	Other and Unknown	Hispanic (may be any race)
Pennsylvania	0.1	0.6	8.8	89.9	0.6	1.3
Illinois	0.2	1.5	14.7	81.1	2.6	5.6
Michigan	0.5	0.7	12.9	85.2	0.7	1.8
Minnesota	0.9	0.8	1.3	96.7	0.3	0.8
New York	0.3	1.9	13.7	79.9	4.3	9.5
Ohio	0.1	0.5	10.0	89.0	0.4	1.1

SOURCE: _The Chronicle of Higher Education Almanac_ (1988)

TABLE 5

EDUCATIONAL ATTAINMENT OF ADULTS BY PERCENTAGE OF PENNSYLVANIA AND SELECTED STATES

State	4 Years High School	1-3 Years College	4 Years College
Pennsylvania	64.7	24.3	13.6
Illinois	66.5	31.4	16.2
Michigan	68.0	30.0	14.3
Minnesota	73.1	34.5	17.4
New York	66.3	32.2	17.9
Ohio	67.0	26.5	13.7

SOURCE: The Chronicle of Higher Education Almanac (1988)

TABLE 6

INCOME OF PENNSYLVANIA AND SELECTED STATES

State	Median Family Income 1979	Percentage of Population Below Poverty Level 1979
Pennsylvania	19,995	10.5
Illinois	22,746	11.0
Michigan	22,107	10.4
Minnesota	21,185	9.5
New York	20,180	13.4
Ohio	20,909	10.3

SOURCE: U.S. Bureau of the Census (1987)

TABLE 7

EMPLOYMENT IN NONAGRICULTURAL ESTABLISHMENTS BY PERCENTAGE OF PENNSYLVANIA AND SELECTED STATES

State	Population Age 18+ Working in Nonagricultural Establishments 1986	Population Age 18-64 1986
Pennsylvania	53.1	51.7
Illinois	56.3	61.5
Michigan	54.5	61.6
Minnesota	60.9	61.2
New York	59.0	62.5
Ohio	56.6	61.2

SOURCE: U.S. Bureau of the Census (1987)

TABLE 8

STATE AND LOCAL GOVERNMENT FINANCES OF PENNSYLVANIA AND SELECTED STATES

	General Revenue 1985		Outstanding Debt 1985		Direct General Expenditures 1985	
State	Total	Per Capita	Total	Per Capita	Total	Per Capita
Pennsylvania	27,163,000	2,292	25,197,000	2,126	24,040,000	2,028
Illinois	27,399,000	2,375	21,709,000	1,882	25,067,000	2,173
Michigan	24,491,000	2,695	15,214,000	1,674	22,705,000	2,498
Minnesota	13,023,000	3,106	13,959,000	3,329	11,918,000	2,842
New York	64,568,000	3,631	62,454,000	3,512	59,455,000	3,343
Ohio	24,229,000	2,255	16,642,000	1,549	22,781,000	2,120

SOURCE: U.S. Bureau of the Census (1987)

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TABLE 9

EDUCATIONAL EXPENDITURES OF PENNSYLVANIA AND SELECTED STATES

State	Total Elementary and Secondary Education Expenditure 1987	Elementary and Secondary Education Expenditure per Student 1987	Public Institutions of Higher Education Appropriation per FTE 1987	Number of School District Govern-ments 1987
Pennsylvania	9,394,000	4,752	3,825	517
Illinois	7,653,000	3,980	3,567	1,029
Michigan	6,620,000	3,954	3,631	590
Minnesota	3,191,000	4,241	3,854	441
New York	15,464,000	6,299	5,852	722
Ohio	7,435,000	3,769	3,194	621

SOURCE: U.S. Bureau of the Census (1987)

APPENDIX B

DELPHI INSTRUMENTS

PENNSYLVANIA VOCATIONAL EDUCATION STUDY

Name ____

Please list the five major strengths and weaknesses/problems of the Pennsylvania vocational education system. Please be clear and concise.

STRENGTHS

(1)

(2)

(3)

(4)

(5)

WEAKNESSES/PROBLEMS

(1)

(2)

(3)

(4)

(5)

(Please go to next page)

PENNSYLVANIA VOCATIONAL EDUCATION STUDY

Please list suggestions for improving the delivery of a comprehensive, articulated program of vocational eduction in the Commonwealth of Pennsylvania. Your suggestions may cover areas such as state and local governance, program relevance, program planning, program evaluation, curriculum, instructional processes, program goals, coordination of program offerings by various agencies and institutions, staff development, program relationships with business/industry, and other areas you deem appropriate. Please be brief and concise.

(1)

(2)

(3)

(4)

(5)

PENNSYLVANIA VOCATIONAL EDUCATION STUDY

Second Round - Policy Delphi

Name ____

Office telephone number (_____)__________________
(We are requesting a telephone number
to use in the event that we need to
further discuss your ideas.)

DIRECTIONS:

Please respond to the following issues, goals, and alternatives by placing an "x" in the box that indicates the levels of desirability and feasibility you would assign to each item. It is important that we understand the logic behind your ratings. Therefore, we are asking that you briefly and clearly describe why you rated each statement as you did.

1. The state education agency should provide leadership for and coordinate the development of a long-range vision of what vocational-technical education is and what is should be and communicate that vision to all publics.
   Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

2. The state education agency should provide leadership and technical assistance for local public and proprietary education institutions to develop plans for coordinated and articulated vocational-technical education programs at all levels. Such plans would include individual and community needs assessment, specification of program offerers, and program scope and sequence.
   Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

3. Audits should be conducted by local providers of vocational-technical education programs to determine what happens to students after they leave vocational-technical education programs.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

4. Leadership from the state education agency is needed to maintain a cutting-edge emphasis in vocational-technical education curriculum development, research, program planning, program evaluation, and personnel development.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

5. State and local vocational-technical education administrators should have in-depth knowledge of vocational-technical education acquired through a combination of formal preparation and experience.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

6. The position of chief administrator for vocational-technical education in the state education agency should be elevated to the level of commissioner.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

7. The state education agency needs to place more emphasis on and give more visibility to innovative/exemplary vocational-technical education programs.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

8. State leadership and other resources should be provided to local institutions for enhancing the job placement programs and processes.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

9. Vocational educators should seek agreements with business and industry officials who would guarantee placement of vocational-technical education graduates.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

10. The state should develop a system for vocational-technical education equipment replacement and a system for funding needed equipment.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

11. All beginning vocational-technical education teachers should have a baccalaureate degree.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

12. The state should establish a research and development center with responsibility for planning and conducting statewide efforts for vocational-technical education in--

- o Curriculum Development
- o Innovative/Exemplary Programs
- o Personnel Development
- o Research
- o Program Planning
- o Program Evaluation

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

13. The state, in cooperation with business and industry, should develop training programs that use the facilities of business and industry to update the technical skills of vocational-technical education teachers.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

14. All vocational-technical education personnel should be required to attend an annual statewide conference that is designed to bring together all teachers, administrators, and others interested in and concerned about vocational-technical education for joint as well as concurrent sessions.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

15. All area vocational-technical schools should be designated as technical institutes.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

16. The area vocational-technical school should have its own elected school board which appoints its own chief school officer.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

17. The regional vocational-technical education offices should be closed and current personnel placed in the intermediate units.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

18. The same funding formulas should be applied to community colleges and area vocational-technical schools.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

19. Area vocational-technical school funding should be based on participating school enrollment regardless of the number of students the participating school sends to the area vocational-technical school.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

20. The state should provide double funding for secondary students attending an area vocational-technical school (i.e., if the subsidy for each secondary student is 1.2, then the subsidy for a student attending an area vocational-technical school should be 2.4).

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

21. A career awareness program should be implemented in all school systems.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

22. Exploratory vocational-technical education programs should be offered at the middle/junior and senior high school levels.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

23. Vocational-technical education should be offered as clusters of occupations at the ninth grade and all students should be required to enroll for credit in these combination hands-on career development courses. Students would receive 1 credit for participating in 4 cluster areas that they would choose.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

24. The curriculum offering of the area vocational-technical school should be comprehensive, integrating vocational and academic education.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

25. Where possible, apprenticeship programs should be established in conjunction with vocational-technical education programs.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

26. Secondary vocational-technical education should be a generalized offering reflecting core clusters and transferable technical knowledge and skills with emphasis on critical thinking and enhancement of basic skills.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

27. Vocational-technical education programs should be competency based with no requirements regarding the minimum number of hours to be completed.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

28. Vocational-technical education programs should be discontinued at the secondary level and offered only at the postsecondary level.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

29. Vocational-technical education needs to develop and offer special programs for those individuals who have dropped out of school.
Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

30. Area vocational-technical education schools should place a major focus on adult vocational-technical education rather than secondary vocational-technical education.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

31. The state should expand customized training programs and use the staff, facilities, and equipment of community colleges and area vocational-technical schools.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

If you would like to add items you feel strongly about, please feel free to do so.

32.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

33.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

34.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

35.

Explanation:

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment
☐	☐	☐	☐	☐
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment
☐	☐	☐	☐	☐

THANK YOU!

APPENDIX C

RESPONSES TO ROUND 2 DELPHI INSTRUMENTS BY PERCENTAGES

APPENDIX C

RESPONSES TO ROUND 2 DELPHI INSTRUMENT BY PERCENTAGES[*]

1. The state education agency should provide leadership for and coordinate the development of a long-range vision of what vocational-technical education is and what is should be and communicate that vision to all publics.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
70%	27%	0%	1%	3%	0%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
50%	29%	4%	0%	3%	13%

2. The state education agency should provide leadership and technical assistance for local public and proprietary education institutions to develop plans for coordinated and articulated vocational-technical education programs at all levels. Such plans would include individual and community needs assessment, specification of program offerers, and program scope and sequence.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
46%	42%	7%	2%	3%	0%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
40%	36%	10%	1%	2%	12%

3. Audits should be conducted by local providers of vocational-technical education programs to determine what happens to students after they leave vocational-technical education programs.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
54%	41%	2%	1%	1%	1%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
50%	34%	2%	1%	1%	13%

4. Leadership from the state education agency is needed to maintain a cutting-edge emphasis in vocational-technical education curriculum development, research, program planning, program evaluation, and personnel development.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
59%	32%	5%	1%	4%	0%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
36%	38%	12%	0%	3%	13%

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[*] Percentages may not equal 100 due to rounding.

5. State and local vocational-technical education administrators should have in-depth knowledge of vocational-technical education acquired through a combination of formal preparation and experience.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
68%	29%	3%	0%	1%	0%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
50%	28%	5%	0%	4%	13%

6. The position of chief administrator for vocational-technical education in the state education agency should be elevated to the level of commissioner.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
21%	20%	19%	9%	29%	3%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
13%	29%	13%	6%	23%	16%

7. The state education agency needs to place more emphasis on and give more visibility to innovative/exemplary vocational-technical education programs.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
38%	47%	4%	3%	5%	3%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
38%	41%	0%	1%	4%	16%

8. State leadership and other resources should be provided to local institutions for enhancing the job placement programs and processes.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
37%	46%	7%	1%	8%	2%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
27%	38%	7%	1%	12%	15%

9. Vocational educators should seek agreements with business and industry officials who would guarantee placement of vocational-technical education graduates.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
33%	49%	13%	4%	0%	2%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
17%	31%	30%	8%	1%	13%

10. The state should develop a system for vocational-technical education equipment replacement and a system for funding needed equipment.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
63%	29%	3%	3%	4%	0%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
31%	38%	9%	3%	4%	15%

11. All beginning vocational-technical education teachers should have a baccalaureate degree.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
27%	33%	24%	10%	1%	5%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
12%	19%	41%	19%	1%	9%

12. The state should establish a research and development center with responsibility for planning and conducting statewide efforts for vocational-technical education in--

- o Curriculum Development
- o Innovative/Exemplary Programs
- o Personnel Development
- o Research
- o Program Planning
- o Program Evaluation

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
43%	25%	11%	8%	9%	4%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
29%	36%	12%	4%	6%	13%

13. The state, in cooperation with business and industry, should develop training programs that use the facilities of business and industry to update the technical skills of vocational-technical education teachers.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
55%	38%	4%	1%	0%	2%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
40%	36%	10%	1%	0%	13%

14. All vocational-technical education personnel should be required to attend an annual statewide conference that is designed to bring together all teachers, administrators, and others interested in and concerned about vocational-technical education for joint as well as concurrent sessions.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
21%	35%	29%	10%	4%	2%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
8%	24%	32%	19%	5%	12%

15. All area vocational-technical schools should be designated as technical institutes.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
19%	22%	18%	13%	24%	4%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
17%	27%	15%	11%	19%	12%

16. The area vocational-technical school should have its own elected school board which appoints its own chief school officer.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
20%	14%	21%	18%	25%	3%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
15%	13%	20%	14%	21%	17%

17. The regional vocational-technical education offices should be closed and current personnel placed in the intermediate units.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
8%	10%	21%	31%	29%	2%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
10%	19%	14%	22%	20%	13%

18. The same funding formulas should be applied to community colleges and area vocational-technical schools.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
21%	18%	9%	13%	35%	4%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
18%	19%	9%	12%	31%	12%

19. Area vocational-technical school funding should be based on participating school enrollment regardless of the number of students the participating school sends to the area vocational-technical school.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
21%	27%	9%	21%	18%	4%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
20%	18%	13%	18%	16%	15%

20. The state should provide double funding for secondary students attending an area vocational-technical school (i.e., if the subsidy for each secondary student is 1.2, then the subsidy for a student attending an area vocational-technical school should be 2.4).

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
33%	22%	12%	9%	20%	4%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
20%	23%	12%	7%	17%	21%

21. A career awareness program should be implemented in all school systems.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
87%	13%	0%	0%	0%	0%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
63%	21%	2%	1%	0%	13%

22. Exploratory vocational-technical education programs should be offered at the middle/junior and senior high school levels.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
52%	37%	4%	2%	5%	1%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
38%	33%	10%	0%	4%	15%

23. Vocational-technical education should be offered as clusters of occupations at the ninth grade and all students should be required to enroll for credit in these combination hands-on career development courses. Students would receive 1 credit for participating in 4 cluster areas that they would choose.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
30%	39%	13%	5%	10%	2%

Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
18%	29%	27%	5%	8%	13%

24. The curriculum offering of the area vocational-technical school should be comprehensive, integrating vocational and academic education.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
33%	40%	13%	4%	6%	4%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
24%	30%	22%	6%	4%	13%

25. Where possible, apprenticeship programs should be established in conjunction with vocational-technical education programs.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
52%	41%	2%	0%	4%	1%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
34%	37%	7%	3%	5%	14%

26. Secondary vocational-technical education should be a generalized offering reflecting core clusters and transferable technical knowledge and skills with emphasis on critical thinking and enhancement of basic skills.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
31%	27%	20%	9%	13%	0%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
20%	32%	14%	4%	12%	18%

27. Vocational-technical education programs should be competency based with no requirements regarding the minimum number of hours to be completed.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
24%	38%	19%	11%	6%	2%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
23%	31%	21%	7%	6%	12%

28. Vocational-technical education programs should be discontinued at the secondary level and offered only at the postsecondary level.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
5%	10%	19%	62%	27%	2%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
9%	13%	24%	37%	4%	13%

29. Vocational-technical education needs to develop and offer special programs for those individuals who have dropped out of school.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
43%	43%	4%	3%	4%	3%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
33%	36%	7%	3%	4%	17%

30. Area vocational-technical education schools should place a major focus on adult vocational-technical education rather than secondary vocational-technical education.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
10%	13%	43%	26%	4%	4%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
13%	20%	33%	11%	6%	18%

31. The state should expand customized training programs and use the staff, facilities, and equipment of community colleges and area vocational-technical schools.

Very Desirable	Desirable	Undesirable	Very Undesirable	No Judgment	No Response
35%	44%	4%	4%	13%	1%
Definitely Feasible	Possibly Feasible	Possibly Unfeasible	Definitely Unfeasible	No Judgment	No Response
28%	40%	7%	1%	9%	15%

APPENDIX D

TELEPHONE INTERVIEWS WITH OFFICIALS IN ILLINOIS, MINNESOTA, AND OHIO

Illinois Vocational Education: A Movement to Regional Systems under the Education for Employment Title

Setting/Factors Involved in Reorganization

Like other Midwest states, Illinois has suffered a tremendous loss of heavy manufacturing industry over the last decade. The state is highly diverse. Chicago is highly urbanized with a high-technology corridor developing rapidly around Interstate Highway 80. But, outside of Chicago, Illinois is largely rural with small pockets of population. It is difficult for one system to meet the needs of the population extremes. Prior to the Education for Employment policy adoption in 1984, 12 state consultants worked with 750 school districts, each with its own vocational education plan, and 39 community colleges. The state needed a system that could respond to diversity and maximize resources. The Education for Employment plan called for the state to organize in regional consortia, requiring school districts to function in a consortium to receive vocational education funds.

Purpose/Goals

Illinois' vocational education system, developed on an agricultural and industrial base, needed to be transformed for an information-processing base. Under the traditional system, aside from the vocational education being divided into 750 districts, teachers and programs were out of touch with industry needs or requirements, and equipment was outmoded. Improvements were aimed at making better use of human, financial, and capital resources at both the secondary and postsecondary levels.

The first phase of a 3-year planning process was begun July 1, 1985, the end product being the organization of vocational education into regional systems. Regional organization would allow the system to be aware of and address both national and local market needs. The 750 districts and 39 community colleges were organized into 61 regional systems. Task lists were developed for stable and emerging occupations and were verified by industries/businesses and educators to determine skills needed for given occupations. The end goal was to educate students for occupations that will be available and with skills and attitudes and work habits that business and industry want. The task lists provided the basis for a competency-based instructional format.

Attitudes

Although vocational education is regarded as an important component of the educational system, there is still a stigma attached, particularly at the secondary level. For most students, going to college is still the American dream and there is a general feeling that vocational education is inferior to academic education--that comprehensive high schools should have vocational education, but for "other" people's children. Many parents lack information about vocational education and view it as a program for "can'ts" and "won'ts."

The idea that vocational education is for those who cannot go on to college is increasing as academic requirements for college entrance increase. Counselors advocate/advise that the college preparatory curriculum be tightly adhered to in order to ensure that students meet the college entrance requirements upon graduation. Some college bound students take a few vocational education courses (e.g., computer keyboarding, accounting) to embellish their college prep skills (parents have not traditionally seen courses such as accounting and keyboarding/data processing as vocational). However, some students feel that vocational courses on the transcript might actually hurt their chances for acceptance into college.

Structure/Governance

The Illinois education system is operated with three boards. The State Board of Education is solely responsible for secondary vocational education, and funds the community colleges directly for their participation in secondary vocational education. The review process for community college participation in vocational education is the responsibility of the Community College Board, which operates under the Higher Education Board.

The Assistant Superintendent for Adult, Vocational, and Technical Education reports to the Associate Superintendent for Educational Programs who is responsible to the State Superintendent of Education. District participation in one of the 61 regional Education for Employment systems is required for receiving state funds. Each of nine regional vocational administrators are responsible for approving and evaluating regional programs over a given part of the state. In addition, each region is required to have a regional advisory committee. The regional systems themselves are managed by System Directors who report to local boards of control formed under district joint education agreements. State guidelines for joint agreements identified broad areas to be covered (e.g., administration, decision-making process, financial operations, process for withdrawal and deposition of joint ownership) but specific details were left to the participating districts.

Articulation agreements between secondary and postsecondary institutions were required in each region as a condition for funding. In the third year of the planning process, each community college was given $20,000 to use in forming articulation agreements. A Student Services Committee is required for each of the regions and is comprised of representatives from secondary guidance and counseling and special education; the special needs and student services coordinators from the postsecondary institutions; and state agency representatives from such entities as vocational education, vocational rehabilitation, and JTPA. In addition, each region is required to have a regional advisory committee.

Area Vocational Technical Centers comprise another secondary delivery concept to provide high-cost, low-incident programs to a number of cooperating school districts. Many of the programs in the AVTCs fell into trouble due to declining enrollments. In addition, the AVTCs had no revenue source independent of the participating districts. Employment for Education took a similar organizational concept--but without brick and mortar money--and blanketed the state with the 61 regional systems.

Funding

Illinois, at the time of the survey, was in the process of trying to get an income tax measure passed but to many, passage seemed doubtful. Prospects also seemed dim for increased federal funding for vocational education.

Funding for vocational education falls into five broad categories. Disadvantaged and handicapped, equipment, and sex equity thrusts are all funded from Carl C. Perkins monies; Quality Assistance Money comes from the state for staff development, and curriculum development; and administrative funds come from the state. Funds are distributed on a regional basis for enhanced programmatic activity rather than scattering them among the high schools as under the old system. Planning for the 61 regions was supported by $3 million per year. Initially, the money continued to go to the schools, but in 1988 the money began flowing to the regions.

Faculty Credentialling/Professional Development

In 1988, Illinois was involved extensively in new qualifications for teacher endorsement (credentialling). The state traditionally required 24 semester hours in industrial instruction, 8 semester hours in a unit shop, and 2,000 hours of work experience in an occupational area for instructors. Instructors could be provisionally certified with 2,000 hours work experience in any occupational area, and 60 hours of coursework beyond a high school diploma. Temporary provisional certification required 8,000 hours work experience in any occupational area, no hours beyond the high school diploma to start, but 3 semester hours per year to maintain.

Many teachers are provisionally certified in Illinois in order to teach, and temporary and provisional certification have become big issues. With Education for Employment, credentialling requirements have become more stringent, and designed to coincide more specifically with program areas. For example, requirements in Agriculture are 9 semester hours in the occupational area, 12 hours of core content, plus a methods course.

System directors under the new system are required to have 2,000 hours of work experience plus administrative certification. Since there were only 61 system director positions to be filled under Education for Employment, the state adhered stringently to the formal requirements. A problem in finding highly qualified people from vocational education to fill the system director positions, however, was that they were offered no guarantees to fall back on in case their new positions did not work out.

For professional development, a state council comprised of representatives from nine university councils submit an annual plan to the state to respond to preservice and inservice needs of secondary and postsecondary instructors. Instruction is provided by the teacher education institutions, and some community colleges offer summer workshops. About $3 million per year are distributed to the regions through the Quality Assistance Plan for curriculum renewal and staff development. Distribution is made through a noncompetitive application process based on the previous year's reimbursement from the state. In addition, the state legislature appropriates money for the Vocational Instruction Practicum, a program that provides teachers up to $2,000 for 6-8 weeks of time in private industry to update skills.

Instructional Process

Curriculum development under the Education for Employment plan began with the development of 125 task lists to conform with the 125 occupations taught in the system. The task lists were developed initially by the state using a DACUM process, drawing on a number of sources including information gathered from other states. Statewide task lists were disseminated to private sector employees in the occupational area and to teachers in the regions for verification. The detailed task lists were sold as a communication mechanism. Teachers were working together for the first time to look at tasks and where they were being taught. Teachers are currently being oriented in the new curricula.

A delivery matrix will be used as a tool for administrators to identify program delivery in the state. A Vocational Task Management System will help teachers account for and document the tasks students acquire in courses. It will also aid in secondary to postsecondary articulation.

The task lists are generally seen as helping the system move toward competency-based instruction. The state has also relaxed hour requirements to allow more flexibility in competency-based course approaches. The state maintained, however, its requirement for at least two credits at the junior-senior level in a program sequence plus an orientation component at the freshman-sophomore level.

The Illinois Board of Higher Education mandated higher academic requirements for all freshmen entering universities in 1993. Counselors, afraid of facing liability, are counseling almost all students into college preparatory courses, and as a result vocational education has been facing declining enrollments. Illinois is experimenting with and now field testing the Applied Basics Curriculum developed by a consortium of states in Association with the Agency for Instructional Technology. The curriculum is taught variously by vocational education and academic instructors. Some schools are also experimenting with the Principles of Technology Curriculum developed by the Center for Occupational Research and Development (CORD).

Some respondents see the emphasis on articulation between secondary and postsecondary institutions as moving the high schools toward competency-based instruction. Community colleges, in arriving at articulation agreements with different schools, are faced with widely varying skill levels and competencies of incoming students. They, in turn, are reducing requirements for their courses to competence mastery. The problem at the high school level in moving to competency-based instruction is arriving at a funding formula.

Strengths and Weaknesses

There is wide agreement that vocational education in Illinois has benefitted by pulling the regions together in a systems approach. Strengths of the approach are identified as follows:

- The community has come together in a closer working relationship--business and industry in particular are working more closely with education.
- Both teacher and administrator barriers between secondary and postsecondary levels--created both by geographic distance and institutional focus--have been greatly reduced, resulting in greater communication and mutual support.
- People involved have a better feel for the total educational process.
- The curriculum is being updated and made more relevant--2+2 curricula are being adopted; more choices and options are being generated in program areas because of access to business/industry and other schools; movement toward a competency-based structure has been moved forward by identifying common course titles and common core curricula.
- Equipment, though inadequate, can be better used through coordination.
- Small schools are relieved of part of the administrative burden, and have less paper work.

There also seems to be fairly wide agreement on the major weaknesses in the reorganization. Those mentioned are as follows:

- Incentives rather than mandated change might have been more effective. The moment changes became a requirement, some schools formed battle lines. Districts would have felt better if they had been drawn to change by incentives.
- The state could have been less detailed in its directives, leaving more decisions to the local level. Too much time was spent in detailed meetings.

- The communication process needed simplifying. A single message being communicated by 12 consultants to 61 regions across various layers of administration tended to become garbled before reaching its final destination.

- Organization and mapping could have been simplified, and administrative costs decreased by making Education for Employment (vocational education) regions coincide with the community college districts--61 regions were created and there are 39 community college districts.

- More long range planning appears to be needed. There have been some complaints that directives were often changed in midstream giving the impression that state staff "were flying by the seat of their pants."

Vocational Education Transition in Minnesota: Toward Outcome-Based Education

Attitudes Toward Vocational Education

Vocational education in Minnesota is widely seen as having a purpose, but there is no consensus on what vocational education's purpose is. Whereas most regard it as important, some see it as having a less important role in education than the academic curriculum. However, the public generally perceives a need for more career awareness and work readiness. Historically, vocational education has run the gamut in terms of commitment from "king of the hill" with lavish funding to the current point where the validity of vocational education in the schools is being questioned with an undertone among some that vocational education needs to "shape up or get out of the picture." Even where vocational education is well received, no one is out beating the drums for it as they are for such areas as programs for the gifted.

A wide variety of students are attracted to vocational education. Most are in the metropolitan area around Minneapolis-St. Paul, with some pockets of concentration among the Indian population. The overall majority are the children of blue-collar parents, a sprinkling of whom are college bound. Some will go on to the technical institutes for postsecondary education--but most are not seen as being motivated by academic curriculum. The stereotype is that vocational education is for the noncollege bound, although two-thirds of the 10th-12th graders take some vocational education. Certain occupations taught in vocational education are stereotyped by lower socioeconomic level and academic ability, whereas other occupations tend to attract upper quartile students.

Purpose/Goals

In 1983, the Minnesota state legislature sent a message to the vocational system that it must change by cutting funds and asking for greater program justification. The signal was that there would be further cuts unless the vocational education system instituted reforms to make it more responsive to changing conditions. The task force is using the term transformation rather than reform to reflect that changes are being made not with the attitude that things were wrong in the old system, but rather that it was not suitable for the 21st century. The system has been characterized by a low dropout rate, but the question remains, are people learning?

The goal of the system is to move to a learner-centered, outcome-based system for K-12 by 1993. A task force member stated "6-1/2 billion dollars are spent on education, but nowhere is it written in all the legislation and statutes that people must learn." The long-term goal for vocational education is that it should not be looked at as one discipline in many, but that vocational education should make a contribution alongside science or other academic subjects to the overall K-12 experience. The goal of the whole educational system is to develop and demonstrate the knowledge and competence in students necessary to fulfill their lifelong pursuits.

Under the transformed system, there is recognition that all students are capable of learning, but at different rates and in different ways. The goal is personalized as distinguished from individualized education. To address the high Indian dropout rate, for example, the legislature is stressing more emphasis on culture.

The task force also recognizes that all K-12 students should be thinking about what they will do when they complete school. A system goal is to shift the emphasis from specific skill preparation to the secondary level and to focus attention on career exploration and work readiness for all K-12 students, including academic.

Another goal is to shift specific skill training to postsecondary institutions including the technical institutes because of concern that secondary schools will not be able to keep abreast of changing technology. The technical institutes, of all units, are most conscious of the need for moving toward a learner outcome-based system. The technical institutes serve many of the nontraditional students--adults in their 30s and 40s who desire work-related courses while raising families. The technical institutes are moving from 6-hour blocks of uniformly prescribed courses to more of a flexible, cafeteria-style approach, allowing students to choose courses based on specific career or work-related interests and needs.

Finally, some task force members see the system moving toward more mandatory articulation between secondary and postsecondary institutions. A current barrier that has been pointed to is that secondary schools and technical institutes operate under two separate governing boards.

Structure/Governance

Vocational education in Minnesota is delivered through the local comprehensive high schools, 33 technical institutes, and 18 community colleges. The system operates with strong local control and the decision whether or not to offer vocational education is a local one. All three systems of institutions--the comprehensive high schools, the technical institutes, and the community colleges--operate under separate governing boards.

The Governor sits on the Education Commission of the States and has a strong interest in education. The Governor appoints the Commissioner of Education who directs the K-12 system and the K-12 Board. The Commissioner is accountable to the Governor, but the board operates independently (i.e., not in the line of authority under the Governor). Prior to the current Governor's term of office, the Commissioner of Education was appointed by the Board of Education. The State Vocational Education Director is appointed by and accountable to an Assistant Commissioner.

Nominally, technical institutes operate under a separate governing board although, in reality, most of their functions are governed by the local school district. The local districts approve programs and teacher salaries for the technical institutes and the governing board has little power except the allocation of funds. The technical institutes offer training and retraining for students who are beyond high school age, but three of the campuses offer secondary courses. Competencies normally can be transferred from the high school to the technical institutes. Currently, the state is trying to improve the linkage so that students can continue their postsecondary education at the technical institutes rather than at a community college.

The 18 community colleges are all within close proximity to the technical institutes, and some technical institutes now have intersystem articulation agreements to allow students to work toward associate degrees.

The state also has an intermediate district concept that provides for levy authority to support vocational education and special education through Vocational Cooperative Centers. They can be supported with state aid, and if they (the co-op centers) meet a specified size criteria, can float levies independent of the local districts.

The Vocational Cooperative Centers (one of a variety of names by which they are known) are governed by a Center Board of Education made up of one member from each of the cooperating school districts. The directors of Vocational Cooperative Centers report to a designated supervising superintendent in the respective cooperative district in which they operate.

Complicating the picture further are new entities called Education Districts being established to take the place of Vocational Cooperative Centers. The Education Districts have a broader based program of work. Included among the private and public cooperating institutions are secondary and postsecondary schools covering academic and vocational education. Whereas the

Vocational Cooperative Centers must be recommended and approved by the State Board of Education, Education Districts do not require Board approval. They have legal authority to form, provided they meet certain legal criteria. A staff member in the Commissioner's office simply checks to see that the institutions, as a group, meet the criteria for authorization.

The secondary funding formula for vocational education uses an excess-cost formula, taking into account the cost of vocational education programs and subtracting the general education the students earn.

Faculty Credentialling and Development

There are two licensing authorities in Minnesota. The State Board of Teaching licenses secondary vocational teachers and all other teachers except postsecondary vocational teachers whose licensing was transferred to the State Vocational Board. For secondary vocational instructors, an average of about 4,000 hours of work experience for those with a degree and about 6,500 hours work experience for those without a degree are required. Some hours of work experience can be substituted with courses.

There have been some preliminary discussions about credentialling although not much has been concluded. A number of respondents see some movement toward encouraging academic and vocational skill integration for teachers. More dual academic-vocational certification has been suggested, requiring vocational teachers to become grounded in the basics rather than just "teaching shop." Some current license requirements would have to be waived to accommodate teachers who would teach vocational education courses. A science instructor, for example, would not have the industrial technology license necessary to teach in an integrated setting even though he or she might have the knowledge or skills. Because of recent cuts to vocational education, it is felt that vocational teachers are much more likely to see the need for integration than are academic teachers.

It has also been suggested that flexibility could be increased by allowing people to teach at the local level without credentialling. The move would facilitate bringing people from industry without degrees to teach some segment of a class. Speculation is that the proposal would gain stiff opposition from teachers unions, but the legislature might introduce it anyhow.

The movement to an outcome-based system is also likely to force teacher education programs to an outcome-based model themselves (e.g., "Here's what teachers need to know to function in a given area"). A study supporting this view was completed in 1986, and is now being put into place. At least one Education District, recognizing changing requirements for functioning in an outcome-based system, is putting its teachers through district-sponsored staff development to accommodate the transition.

Instructional Processes

The state system is seen by some state task force members as moving eventually to some form of competency-based, open-entry/open exit classes. The terminology used is outcome-based or results-based instruction rather than competency-based, and the vision is for the total system, academic and vocational. The plan emphasizes removing boundaries between systems to facilitate continuity in learning. In the outcome-based system, time will be looked at much differently. Students will have to acquire expected outcomes before moving on, subject matter or skills will be taught and retaught until mastery is achieved. It is envisioned that instruction will be much more rigorous with some talk of moving to a grading system that only recognizes A, B, and Incomplete. It will be necessary to state the outcomes in terms of courses for a period of time to ease interpretation of work to be transferred to 2- and 4-year institutions for credit.

Strengths/Weaknesses

There is a feeling that Minnesota has been successful historically in providing education from K-12 through the career stages. Until the last 5 years, most students had at least one vocational education course. Over the past few years, the secondary system has been weakened by increased demands for academic requirements and the reduced concomitant demand for vocational courses.

There is wide agreement that a major accomplishment was pulling together a task force to work on the vocational education reauthorization plan for a variety of interests with support from both the House and Senate. Over 250 educators (vocational and academic), administrators, legislators, and students were involved in the thinking process and, while there was strong direction, a consensus process was used allowing everyone's ideas to be considered in the plan's development.

They were also pleased with the product--a plan calling for an outcome-based system, the integration of academic and vocational education, secondary-postsecondary articulation, and equal access with legislative recommendations that rules be relaxed to achieve it.

At the same time, there is a great deal of apprehension over the enormity of the task and the pace at which changes are occurring. The time allotted to prepare the report was only 5 months. It took 3 months for the money to be allocated from the legislature, and the process of putting the report together had to start before the funds were in hand. Those circumstances limited the amount of participation from the field, causing apprehension about the perception of the degree of ownership by stakeholders. Some people see impending legislative changes of a fundamental nature with respect to vocational education and feel they do not know enough about it, and that the changes in the vocational system needed to be viewed, not piecemeal, but as a part of the total educational restructuring.

The question of how to train staff adequately and integrate across disciplines to implement the plan seems overwhelming. The plan calls for retraining 42,000 teachers within 5 years. Because of the enormity of the undertaking, the potential for big mistakes seems greater. Some feel that the proposed changes should be a matter of choice and not mandatory.

Ohio Vocational Education: An Evolutionary Approach to Change

Setting/Factors Shaping Vocational Education

Vocational administrators in Ohio see the state as having a relatively large portion of the population with baccalaureate degrees, a surplus of college graduates, and a shortage of technicians--a state that is generally undertraining for business and technology. Legislation is at a standstill in units funding. Ohio is one of the six highest states in teen pregnancy, and the problem is increasing among vocational students as well as among those in the system at large. The number of physically handicapped, especially those with multiple handicaps, are also increasing rapidly in vocational education.

Attitudes toward Vocational Education

Attitudes toward vocational education vary widely, depending on the level of familiarity of the observer and on the geographic location. The image of vocational education seems to be positive to the man-on-the-street. A recent poll conducted by the Institute for Policy Research in Cincinnati, Ohio, found that 75 percent of respondents who had children in school felt vocational courses would be appropriate for their children; 80 percent of respondents felt that vocational education was "extremely" to "very" important as a part of the high school program.

Business leaders, especially chief executive officers of large companies, express negative attitudes toward vocational education, but those attitudes seem to run counter to the hiring preferences among production supervisors in the large companies. Vocational education is not mentioned prominently as an educational alternative among black leaders, although black students enrolled in vocational education are 17 percent compared to 14.2 percent in the overall school population. By the same token, vocational education seems to carry a generally higher image in the less densely populated blue-collar counties than in the most populous urban counties.

Goal/Purpose of Vocational Education

The Vocational Education Mission Statement in Ohio provides a threefold purpose: to increase basic skills, the core competencies necessary to prepare for entry-level job and for lifelong learning; to build employability skills--those skills and work habits essential for productivity; and to develop employment skills--the skills to perform occupationally-related tasks.

The Department of Education places heavier emphasis on secondary vocational education, although postsecondary vocational education is also emphasized. A number of reasons are cited by state administrators: free education ends at the 12th grade and a number of students will not have the means of advancing immediately to the postsecondary level; more federal dollars are invested in secondary public education than in postsecondary; and there is a need to catch students as early as possible in order to increase the amount and quality of training to which they will be exposed. Of the 300,000 students enrolled in degree granting institutions only 21,000 are in associate degree programs and the vast majority never complete; the bulk of postsecondary education is retraining. The elected State Board of Education and the State Superintendent have established a goal of 40 percent enrollment of secondary students in vocational education, given the dollars available in the current state plan.

Structure/Governance

K-12 public education in Ohio is governed by an elected State Board of Education to whom the State Superintendent of Public Instruction reports. The State Director of the Division of Vocational and Career Education reports to one of five assistant superintendents.

Ohio's 614 school districts are divided among 103 Vocational Education Planning Districts (VEPD). Vocational education must be made available to every 11th and 12th grader. Some single city school systems comprise a VEPD, and some districts combine to form a Joint Vocational School District (JVSD). School districts and JVSDs levy taxes for local support. JVSDs are often more successful in passing levies; because they draw from a wider area, they can request lower millage.

Vocational education programs are delivered through comprehensive high schools, satellite career centers, in a single school district, and joint vocational schools. A major thrust of many of the JVSs is adult training--particularly direct training for industry. Twenty-one centers are full service adult centers with a wide variety of services such as intake, assessment remediation, and career counseling tailored to accommodate adult needs. They are accredited by the North Central Accrediting Association and students are eligible for PELL grants. The Adult Centers are designed to provide business and industry cost-efficient training to upgrade the skills of their personnel. It is also projected that the new welfare reform legislation requirements will create massive adult programs putting intense pressure on the system to respond. Under the new rules, adult clients with no high school diploma must be enrolled in Adult Basic Education.

Funding

Postsecondary vocational education is funded with local, state, and federal funds. The state provides 53 percent and the local provides 47 percent from tax receipts gathered through levies. State funding is based on the Secondary Unit System. A unit is comprised of a teacher, students (15-25), and hours (22-1/2 per week). The state provides $35,000 per unit per school district. Federal money comes from Carl Perkins funds.

JVSs hold somewhat of an advantage in funding. They are able to ask for smaller millage in tax levies because their taxes are drawn from a wider area than the local districts. Consequently, JVS levies are successful. Moreover, JVSs get higher state aid than the locals because they are able to beat them on average daily attendance. Whereas there is a great deal of competition for state and local funds, federal money is not a high concern.

The state equipment line item is $5 million to cover up to 50 percent of a district's costs. Where the state shares the cost of equipment, it has to be tagged with a state tag and sold back to the state after its use. There is some equipment sharing within school districts where secondary and postsecondary programs are run.

Faculty Credentialling/Development

Secondary vocational educators must be certified by the state. Instructors with a baccalaureate degree are required to have 3 years of work experience; those with no baccalaureate are required to have 5 years of work experience and must complete a 36-hour instructional program. Requirements were recently changed from 24 quarter hours to 36, and from 7 years to 5 years trade experience--more baccalaureate education and fewer years experience.

The state also runs its own inservice workshops for vocational education instructors. Five Regional Personnel Development Centers are operated at the state universities with vocational education cosponsorship. The personnel development centers train teachers newly recruited from business and industry and experienced teachers. In addition, they conduct research for vocational education. Local districts sometimes provide paid seminars and provide opportunities for instructors to spend time working in their area of instruction. They are encouraged to use their advisory committees as a means of updating their knowledge in the fields of instruction. They are also encouraged to take teacher education classes.

The state is now promoting dual certification--academic and vocational--for instructors. Many vocational teachers could teach mathematics and science because of requirements in their occupational areas. Vocational teachers can now be paid by the state to work on academic certification.

Currently the state does not check those coming from industry for basic skills. Employers are simply asked for verification of industry experience. It is likely that more entry-level testing will occur for vocational and academic skills.

Instructional Process

The Superintendent of Public Instruction in Ohio is calling for vocational education to push for program excellence. The push is resulting in a movement toward strengthened academics in vocational education to build in transferrable skills for anticipated job changes that students are likely to face in the work world.

The Ohio initiative for increased academic content in vocational education is Program Options. Where the vocational education teacher traditionally taught all vocationally related basic skills, under Program Options certified math, English, and science teachers are teaching the academic content. Coordination between the academic and vocational teachers is facilitated by state-sponsored preservice workshop for teachers, by a correlated outline for classes, and by a scheduled correlation time for the vocational and academic teachers to meet. The vocational teachers communicate to the academic teacher the kinds of tasks to be performed and the academic teacher relates the principals involved.

The movement toward academic vocational integration is having an impact on academic courses as well. Mathematics specialists are now talking about increasing the amount of teaching via applications. There is now talk in Ohio of moving toward a two-track system in education--college preparatory or academic and vocational eliminating the general track. It is widely held that general education prepares the student for nothing.

State officials feel that Ohio will move toward competency-based instruction to reflect the competencies in various occupations, but movement toward open-entry/open-exit instruction is restricted by Carnegie units and time standards. In some cases, seniors in the second semester can go on early placement into the workplace. The adult education programs are largely competency based and open-entry/open-exit, reflecting the necessity to accommodate business and industry needs.

Some articulation agreements allow for early entry into postsecondary programs. Currently, articulation agreements are found at the local level in Ohio. However, the state recognizes it has a responsibility to take the leadership in forming articulation agreements and sees itself taking the initiative more over the next 3 years or so.

Strengths/Weaknesses

Ohio has taken more of an evolutionary than rapid approach to change in its vocational education program. There is a great deal of comfort with the program as it is, but with a recognition that adjustments must be made here and there to meet changing conditions. Strengths pointed to in the program are the following:

- Vocational education is accessible within very short driving time to every student in Ohio.
- Placement rates are high--over 90 percent of students are placed; over 75 percent employed in fields related to training.
- Vocational education has good relationships with the private sector and strong commitment on the part of employers.
- Program Options is an exemplary program.

Areas suggested for attention were as follows:

- Stronger career exploration for younger students
- Greater coordination with public agencies for physical, social, and emotional support
- A restructuring of boundaries between JVSs and high schools to reduce the competition--some high schools are within a few minutes of JVSs
- Better public relations to improve vocational education's image
- The need to keep pushing access, equity, and excellence

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